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From the Editor's Desk

Readers would have noticed an increase in the *Cymbidium* content of recent issues. We welcome contributions and major show reports from the remaining state *Cymbidium* clubs and societies. Peter Rochfort for this issue has put some information together on noteworthy progeny bred from *Cymbidium* Dolly 'Featherhill'. Scott Barrie of Barrita Orchids also showcases some new hybrid Cymbidiums he has bloomed over the past 12 months.

The Cymbidium Society of America (CSA) recently awarded the 2019 Hudlow Medal to Alvin Bryant and Greg Bryant in March 2019. This is a seriously overdue award, for Alvin especially, who has made enormous contributions to hybrid Cymbidiums in Australia, as cut flowers, pot plants and for the astute grower seeking showbench success. Apart from hybridising, Alvin has always been interested in various growing mediums, plant nutrition and seemed to always be engrossed in experimentation. What was so useful and unselfish, was that Alvin would write honest articles about his various endeavours and results. Two aspects in particular that has never left Alvin have been his tremendous enthusiasm and his unparalleled humility. Greg has carried on from his father's early work to make a solid name for himself, backed up by numerous quality and colourful *Cymbidium* breeding lines. Congratulations to both gentlemen. Andy Easton has written a tribute that appears in this issue.

The Australian Orchid Foundation conducts an annual essay writing competition for Australian orchid enthusiasts. The top three winning entries are reproduced in this issue, with the title being "My Greatest Orchid Disaster". Hopefully readers will get some pointers into not committing the same mistakes.

Gerry Walsh "The Rock Lily Man" has a very colourful and engaging writing style. He has also seen lots and lots of native orchids in the Australian bush, is extremely observant with a memory like a steel trap. Gerry has extended the distributional range of a number of our indigenous epiphytic species, with the broad *Dendrobium speciosum* complex his obvious favourite. In this issue he discusses the seldom seen species, *Bulbophyllum weinthalii*. Remember the 9th Australasian Native Orchid Society (ANOS) Conference and Show will be held at Strathpine, Queensland from 23-25 August 2019.

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David Banks
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JUNE – JULY 2019
Volume 84 – No. 3

Contents

Features:

The Mysterious *Cymbidium* Dolly 'Featherhill' .... *Peter Rochfort* 3
Alvin Bryant – Australian *Cymbidium* Icon .... *Andy Easton* 9
New Cymbidiums at Barrita Orchids .... *Scott Barrie* 14
Prasophyllum gravesii (Orchidaceae) a new leek orchid from coastal sandhills of Eyre Peninsula, South Australia .... *Robert J. Bates* 18
A Bit About... *Bulbophyllum weinthalii* .... *Gerry Walsh* 20
New on the Bookshelf: *Rare and Exotic Orchids Their Nature and Cultural Significance* 24
Liparis viridiflora – is it an "Australasian" Species? .... *David Banks* 25
Australian Orchid Foundation - Essay Competition 2018 (1st Prize Winner) "My Greatest Orchid Disaster" (Or my thoughts on how to avert one) .... *Karen Quinn* 28
Australian Orchid Foundation - Essay Competition 2018 (2nd Prize Winner) "My Greatest Orchid Disaster... so far" .... *Julie Copley-Bishop* 29
Australian Orchid Foundation - Essay Competition 2018 (3rd Prize Winner) "My Greatest Orchid Disaster" .... *Sandra Rowcliffe* 30
2019 AOF Essay Prize 32
New species in the *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. complex (Orchidaceae) from Western Australia - 7 .... *David L. Jones and Christopher J. French* 33

Regular Features:

From the Editor's Desk 1
Mail Order Bookshop 45
Advertiser's Index .... IBC
2019 Orchid Events – What's On! .... IBC

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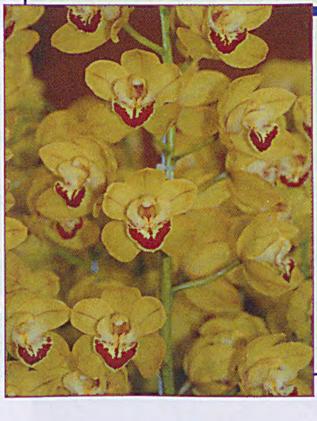

Cover Shot

***Cymbidium* One Tree Hill 'Beenak'**, grown by Bryan Janes. This is one of the successful hybrids bred from *Cymbidium* Dolly. *Photo: DPB.*

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The Mysterious *Cymbidium* Dolly 'Featherhill'

Text and photos by Peter Rochfort

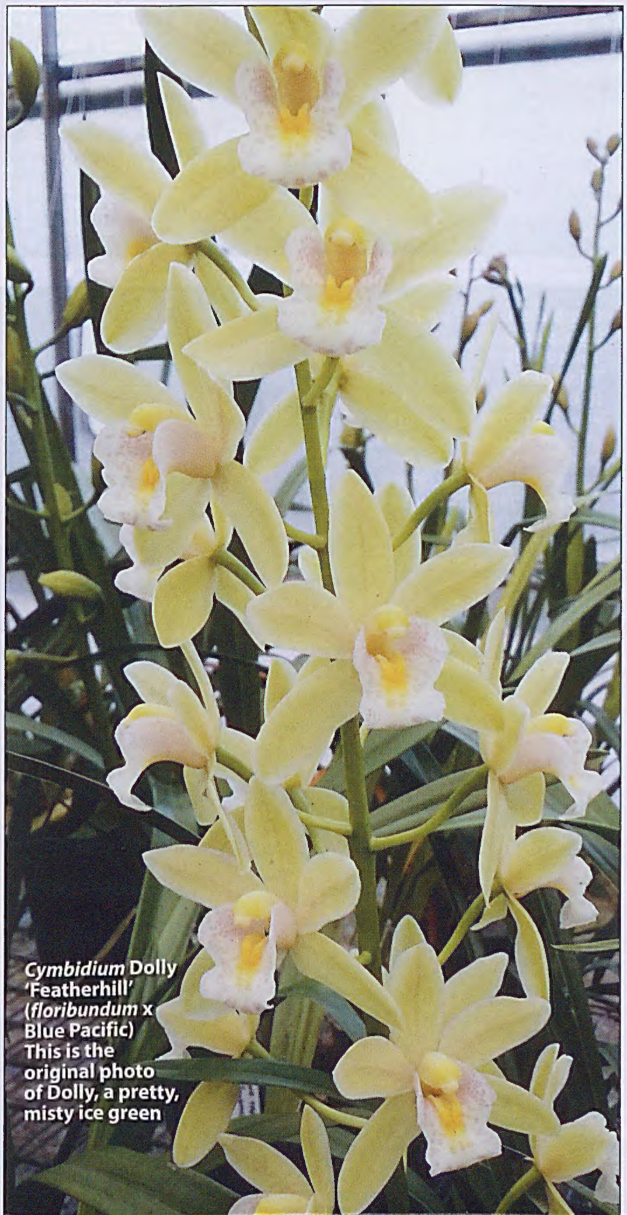
Cymbidium Dolly is from a cross made and registered by Mrs H. Ireland of Santa Barbara, California in 1966. Mrs Ireland was a prolific hybridiser of first generation *Cymbidium floribundum* hybrids. Most hybridists and long term orchid growers are more familiar with this species under the name of *Cymbidium pumilum*. However *Cymbidium floribundum* (1833) was validly described some 74 years before the very same orchid was named as *Cymbidium pumilum* (1907). So a necessary, albeit frustrating name change, as earliest publication dates take priority.

Cymbidium Dolly 'Featherhill' is a very pale misty green miniature *Cymbidium* which has been used by a number of hybridisers, primarily Andy Easton (Geyserland and later New Horizon Orchids). Australian hybridisers include Mt Beenak Orchids, Schaefers Orchids, Ezi-Gro Orchids, Royale Orchids, myself plus a few hobbyists. The things that made *Cymbidium* Dolly desirable as a parent many years ago were its productivity and the nice compact plants it produced. However, although marketed as a tetraploid (4n), most *Cymbidium* Dolly F1 (first generation) progeny were either sterile or grudgingly produced a very small amount of seed. The seedlings it did produce usually contained a significant percentage of runts and aneuploids. After the initial rush of hybrids was made, interest began to wane and not much was heard in Australia about *Cymbidium* Dolly for a couple of decades.

When *Cymbidium* Dolly 'Featherhill' was first released I bought a mericlone from Royale Orchids as did my friend, Dan Tomich. Royale Orchids made a few crosses with their *Cymbidium* Dolly in the early years as did I. The original plant of *Cymbidium* Dolly was given to the nursery, with permission from Andy Easton to mericlone the plant and subsequently release the mericlones.

The results of crosses to that point, as far as I was concerned, did not justify keeping the plant so I dumped it as did Mt Beenak Orchids. About 2010, after a significant illness and the loss of my collection I began working at Royale Orchids for six years. I gradually began to build up a hobby collection by acquiring plants from various sources including Royale and began hybridising again. About the middle of that period I purchased a plant of *Cymbidium* Dolly 'Featherhill' again. It was a division of what was referred to as an "improved" Dolly from the mericlones Royale had flowered, and its progeny were described as using Dolly 'Featherhill 4n' (an untested tetraploid).

I didn't do much with the plant until 2018 when my large plant of Dolly flowered with fifteen spikes from a 180mm pot. It flowered under shade cloth and was magnificent. I told Dan about it and he showed me his *Cymbidium* Dolly 'Featherhill'. There was a vast difference between the qualities of the two plants as Dan also noticed.



Cymbidium **Dolly 'Featherhill' (*floribundum* x Blue Pacific) This is the original photo of Dolly, a pretty, misty ice green**

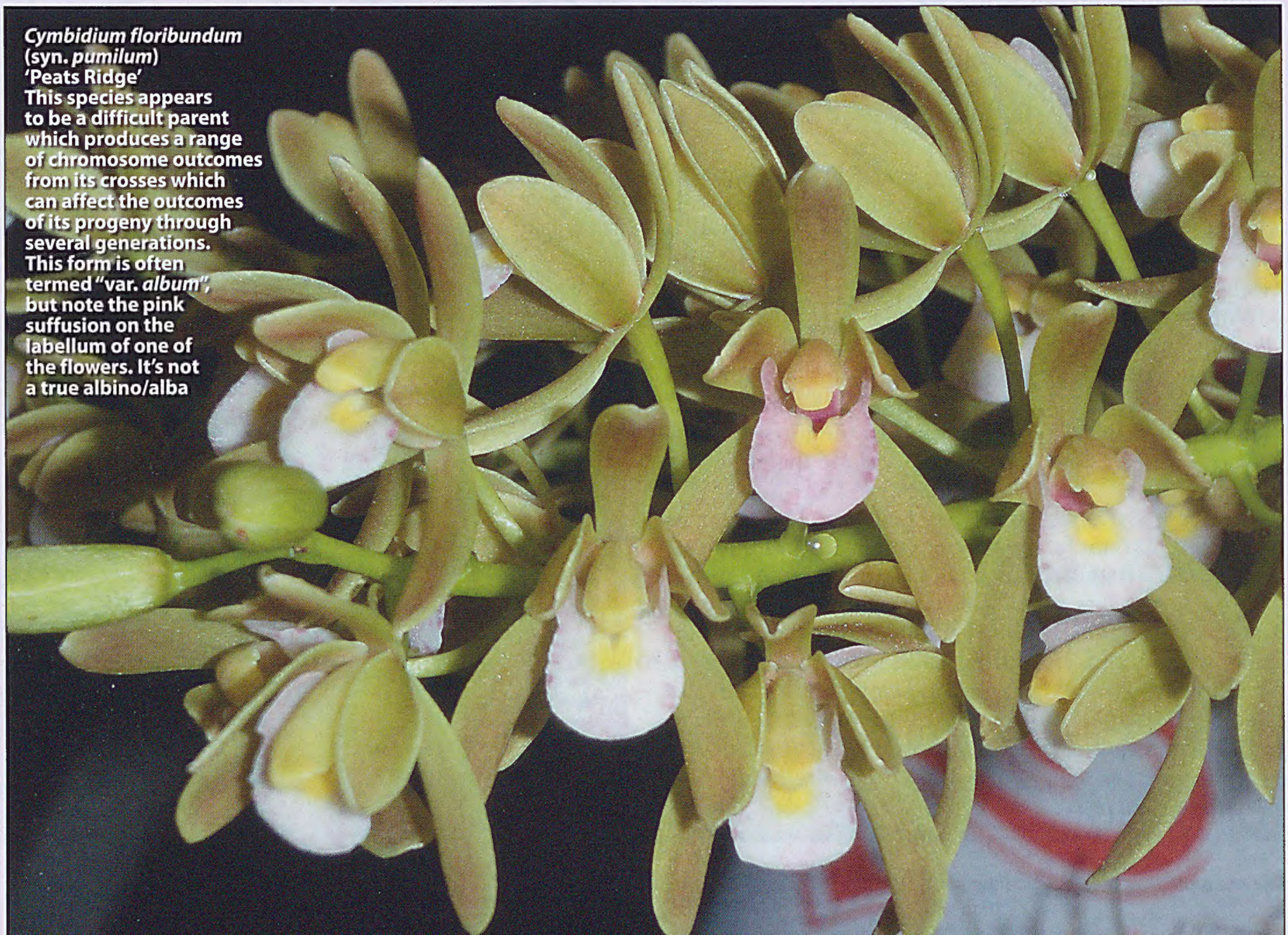
Around the same time I bought a good microscope to check stomatal measurements on some of the mericlones I had bought in and which I was unsure about. Alvin Bryant had taught me to do stomatal checks on his microscope when I worked in his nursery in the late 1970's to early 1980's.

In a lightbulb moment I decided to check the stomata on my plant of *Cymbidium* Dolly 'Featherhill'. To be sure that I was right I did extensive tests on several leaves over a period of weeks. The "improved" *Cymbidium* Dolly 'Featherhill' is not a tetraploid, it is a breeding aneuploid close to tetraploid level. I asked Dan for a leaf of his plant which I also tested. The results revealed that Dan's plant was definitely diploid (2n) with no readings even close to the tetraploid or even triploid level. The one cross that I had made with *Cymbidium* Dolly recently is *Cymbidium* Stargard 'McAngel' x *Cymbidium* Dolly 'Featherhill' ("improved") and a few of this cross should flower in 2019. Then of course, I just had to check the stomatal measurements of the seedlings from this cross. The results were 50% tetraploid or near tetraploid, 46% triploid or near triploid and 4% diploid. What the…!

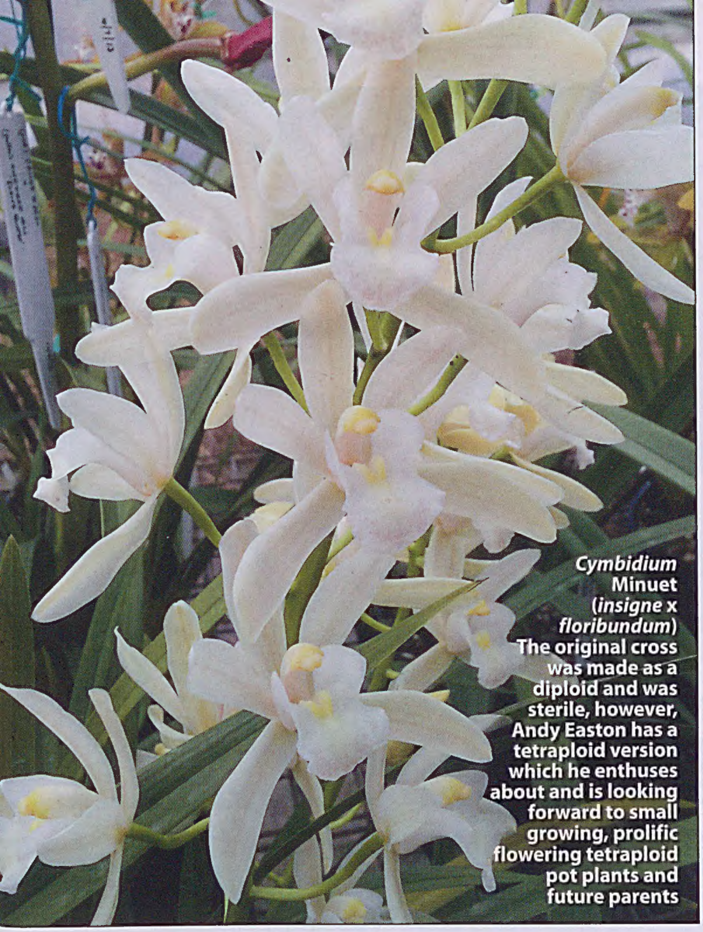
I also checked my clones of *Cymbidium* One Tree Hill 'John's Quest', *Cymbidium* One Tree Hill 'Solstice Gold' and *Cymbidium* Tracey Doll 'Sunrise Soiree' which are first generation *Cymbidium* Dolly hybrids. Over a number of years I have had no success coaxing seed out of these three plants either as pollen or pod parents. There have been a handful of crosses that have been made by Royale using 'Johns Quest' and 'Sunrise Soiree' but with very poor germination and no significant results. Most of the first and second generation have not produced a result that has been used for further breeding and interest in *Cymbidium* Dolly has waned. It is possible that the early crosses were made with the diploid form.

Recently, Andy has gone back to *Cymbidium* Dolly and created a few more crosses particularly with early heat tolerant varieties as an experiment. He is after the fast, compact growth and productivity of Dolly and the early flowering time and heat tolerance in the complementary parents. He is also looking for something other than the cheap flowering *Phalaenopsis* plants that are flooding world markets at the moment. That has egged me on to try a few more Dolly crosses although Dolly needs to be complemented with care to avoid non-descript colour outcomes.

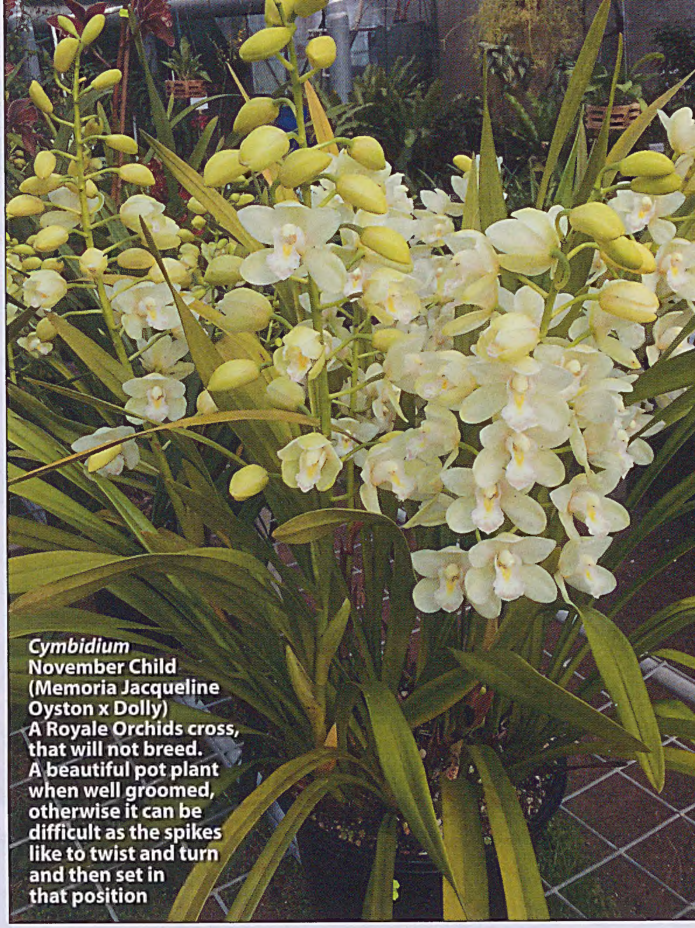
What then, will the results be and why use *Cymbidium* Dolly again when ploidy issues will still be there. What is causing the ploidy issue? According to Andy Easton's New Horizon Orchids public forum (22nd April 2015), "Don Wimber's research showed that primary *floribundum* hybrids did not go through meiosis well and any gametes formed were often unreduced or "giant" (his term)… Not all of the mutations were good so we picked through and sourced the tallest spiked, best growing forms of various clones. *Cymbidium* Dolly 'Featherhill 4n', *Cymbidium* Tom Thumb 'Chit Chat 4n', *Cymbidium* Dag 'Little Jewel 4n', etc, were obtained."



Cymbidium floribundum (syn. pumilum) 'Peats Ridge' This species appears to be a difficult parent which produces a range of chromosome outcomes from its crosses which can affect the outcomes of its progeny through several generations. This form is often termed "var. *album*", but note the pink suffusion on the labellum of one of the flowers. It's not a true albino/alba



Cymbidium Minuet (*insigne* x *floribundum*) The original cross was made as a diploid and was sterile, however, Andy Easton has a tetraploid version which he enthuses about and is looking forward to small growing, prolific flowering tetraploid pot plants and future parents



Cymbidium November Child (Memoria Jacqueline Oyston x Dolly) A Royale Orchids cross, that will not breed. A beautiful pot plant when well groomed, otherwise it can be difficult as the spikes like to twist and turn and then set in that position

The parents of *Cymbidium* Dolly are *floribundum* (as *pumilum*) and Blue Pacific, so Dolly is a first generation *floribundum* hybrid. In relation to results from Dolly, Graham Guest maintains "I have long held the belief *floribundum* derived hybrids produce a range of chromosome outcomes. Andy first came across his higher ploidy Dolly when he identified it amongst a batch of clones. That original was bred with and cloned – my suspicion is that the clones too had a mixture of chromosome outcomes… My belief is that there are no hard rules when it comes to the intermediate hybrids, the best approach is trial and error." Andy also said that *floribundum* is "somehow able to interfere with the predicted Mendelian alba/non-alba ratio so we get considerably fewer albas than one should expect."

On the basis of this information all that one can do if breeding with *Cymbidium* Dolly is to grow the best and strongest plants from Dolly crosses and dump the remainder and any obvious aneuploids. If any of the retained seedlings are good enough to use for breeding when they flower use them as both pod and pollen parents. If after the second flowering they still won't breed it is most likely they are sterile triploids or aneuploids. In that case it's up to you what you do with them. At least you now know why *Cymbidium* Dolly behaves in the way that it does. There are no guarantees. ■

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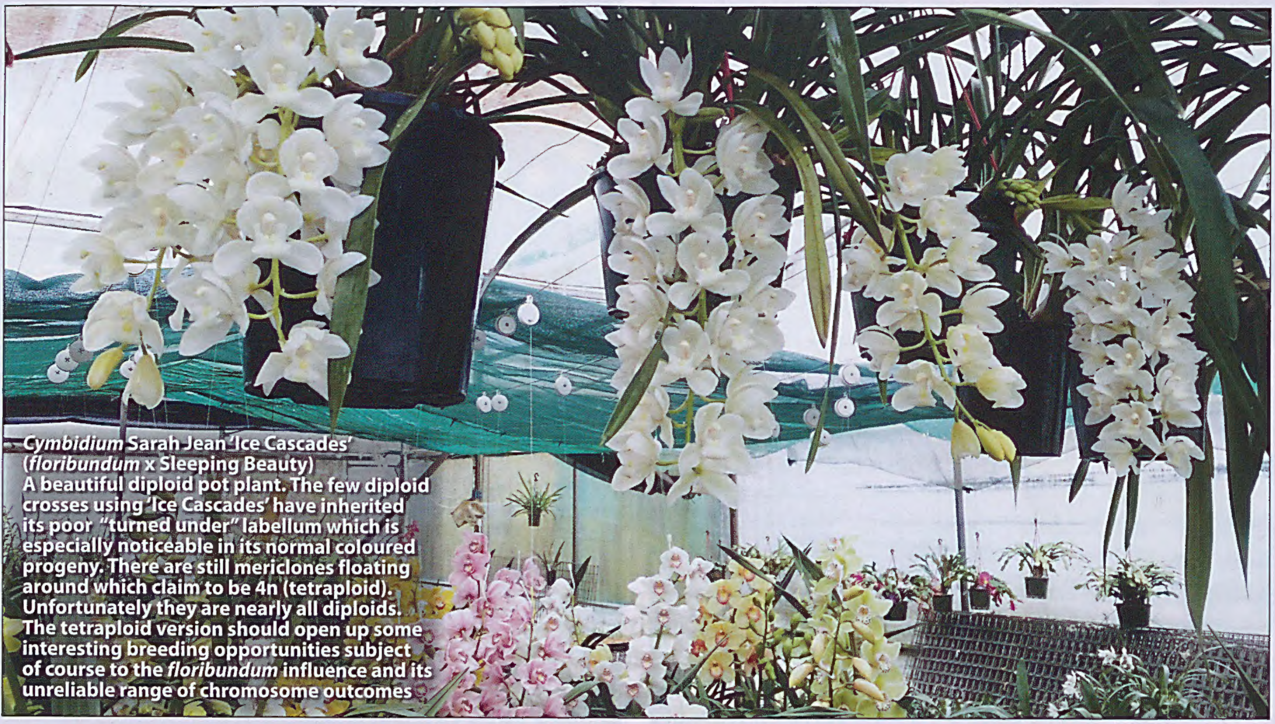
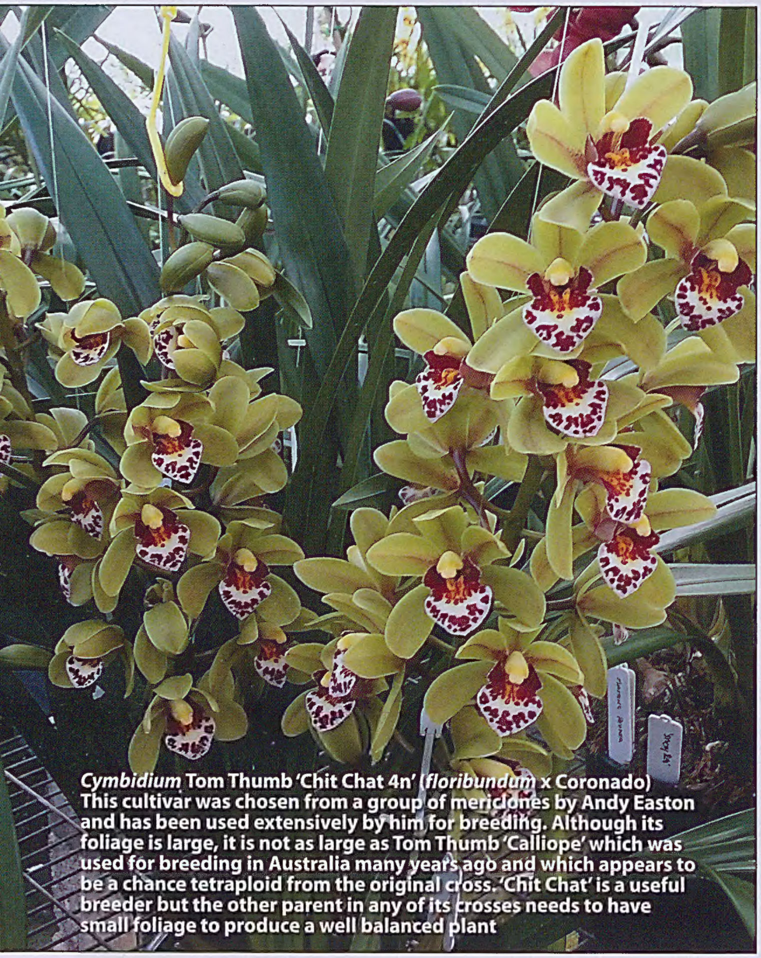
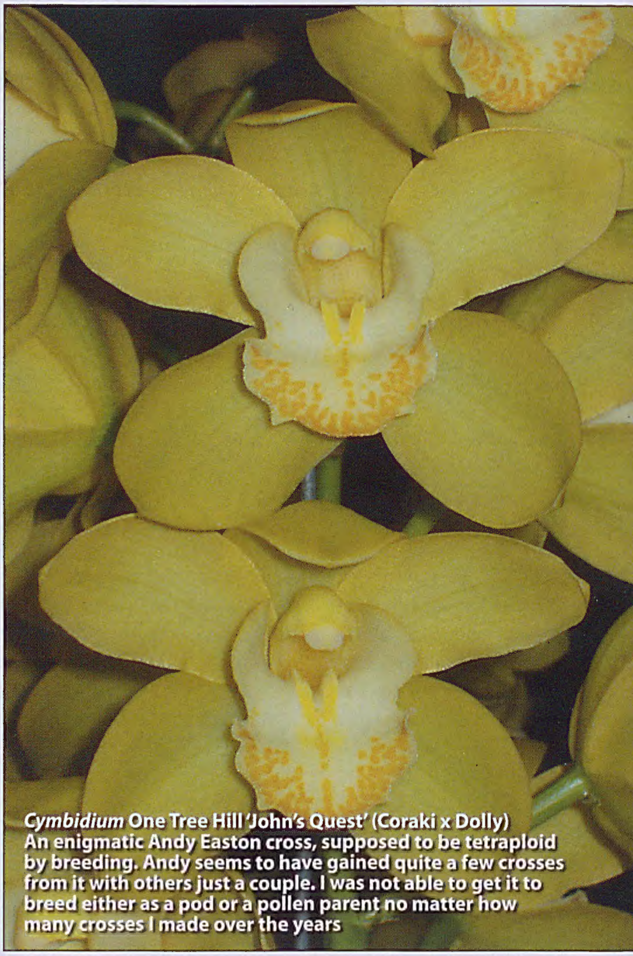


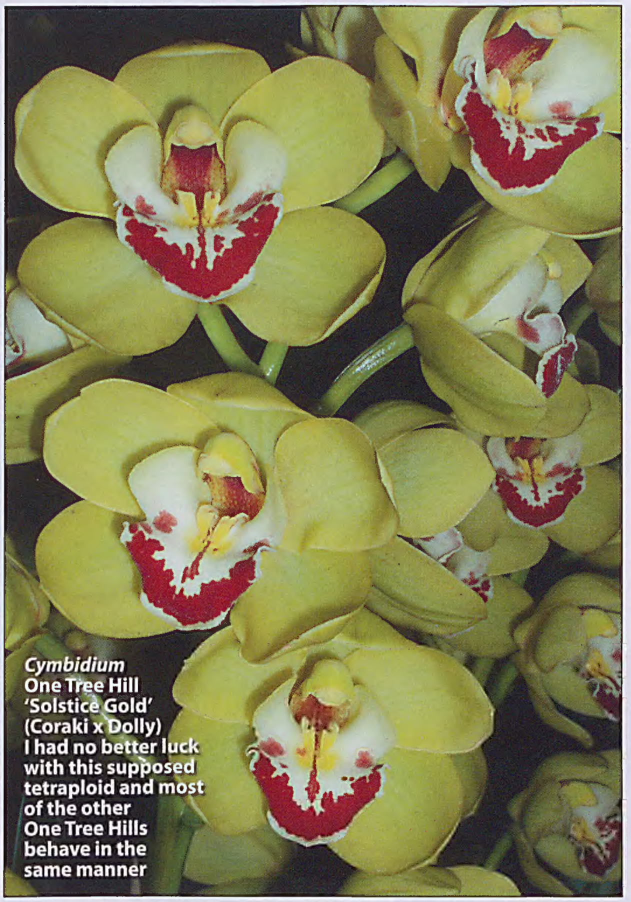
Cymbidium Sarah Jean 'Ice Cascades' (*floribundum* x Sleeping Beauty)
A beautiful diploid pot plant. The few diploid crosses using 'Ice Cascades' have inherited its poor "turned under" labellum which is especially noticeable in its normal coloured progeny. There are still mericlones floating around which claim to be 4n (tetraploid). Unfortunately they are nearly all diploids. The tetraploid version should open up some interesting breeding opportunities subject of course to the *floribundum* influence and its unreliable range of chromosome outcomes



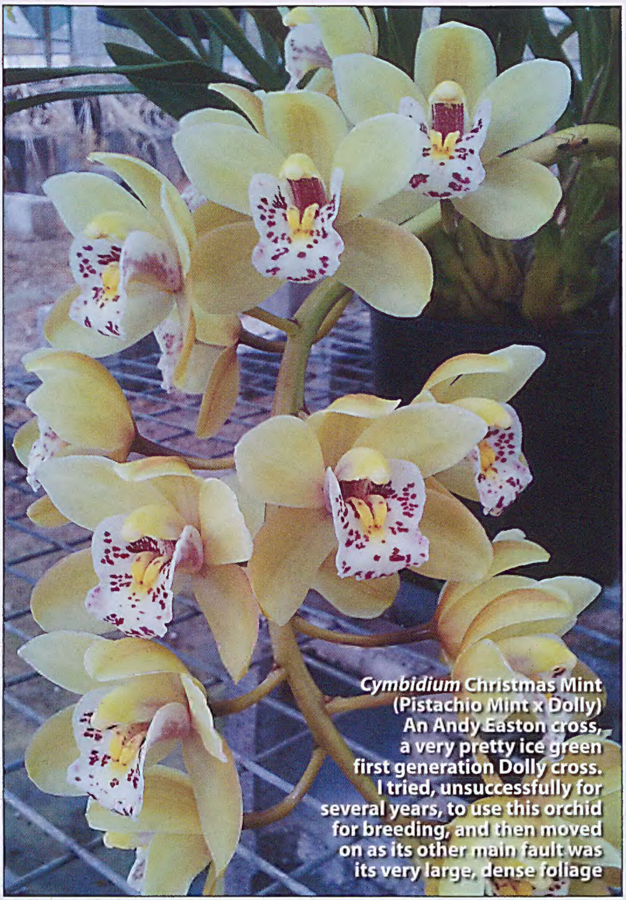
Cymbidium Tom Thumb 'Chit Chat 4n' (*floribundum* x Coronado)
This cultivar was chosen from a group of mericlones by Andy Easton and has been used extensively by him for breeding. Although its foliage is large, it is not as large as Tom Thumb 'Calliope' which was used for breeding in Australia many years ago and which appears to be a chance tetraploid from the original cross. 'Chit Chat' is a useful breeder but the other parent in any of its crosses needs to have small foliage to produce a well balanced plant



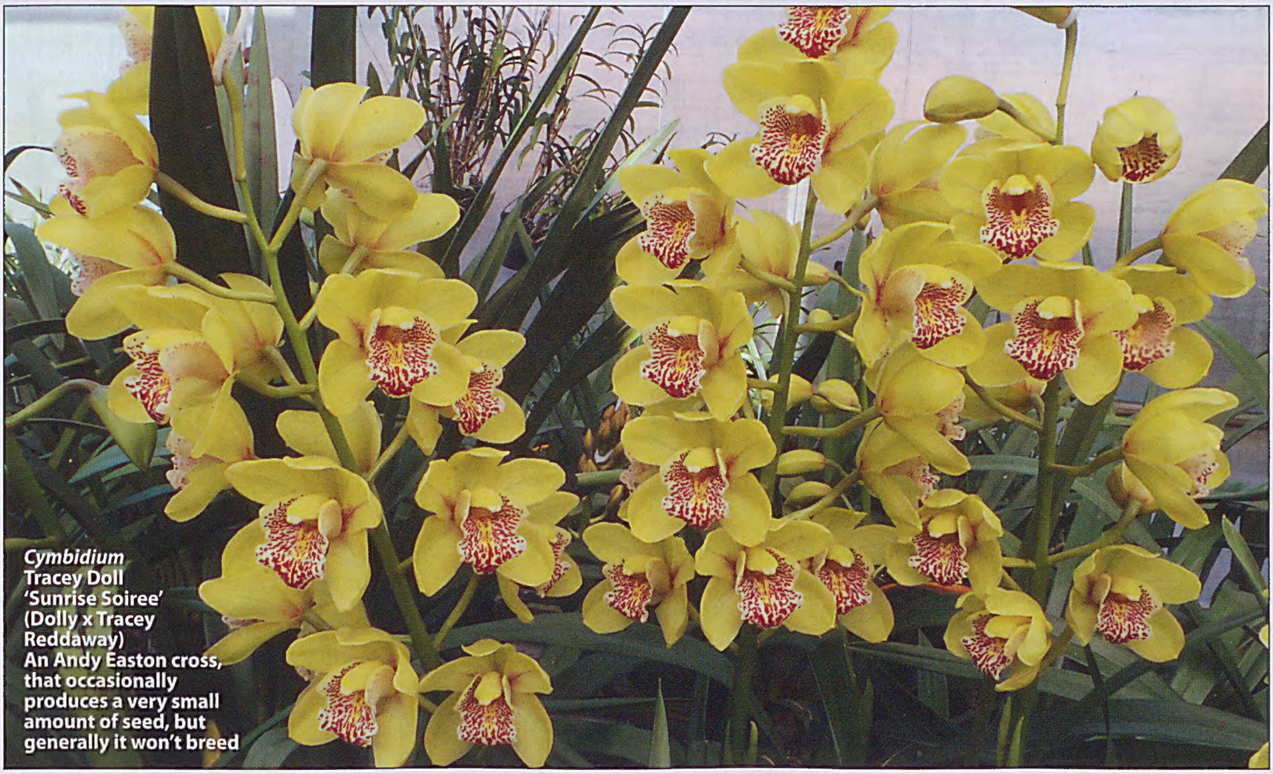
Cymbidium One Tree Hill 'John's Quest' (Coraki x Dolly)
An enigmatic Andy Easton cross, supposed to be tetraploid by breeding. Andy seems to have gained quite a few crosses from it with others just a couple. I was not able to get it to breed either as a pod or a pollen parent no matter how many crosses I made over the years



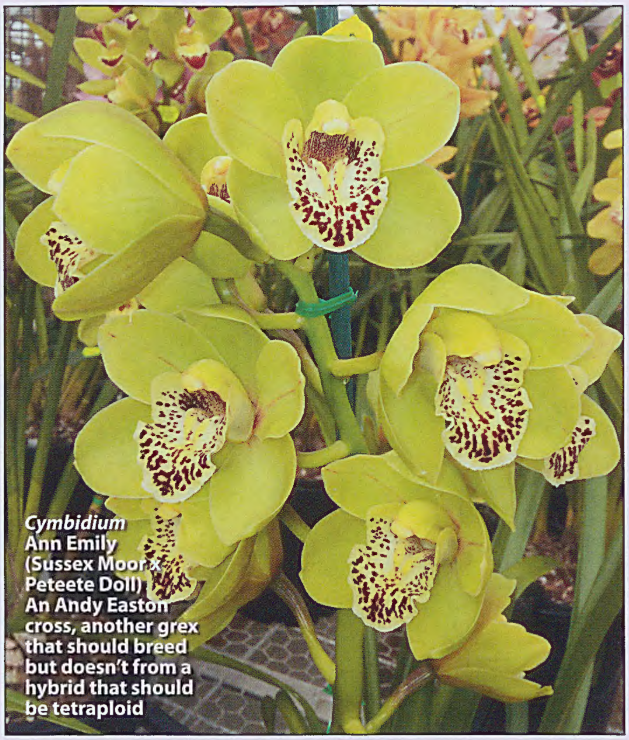
Cymbidium
One Tree Hill
'Solstice Gold'
(Coraki x Dolly)
I had no better luck with this supposed tetraploid and most of the other One Tree Hills behave in the same manner



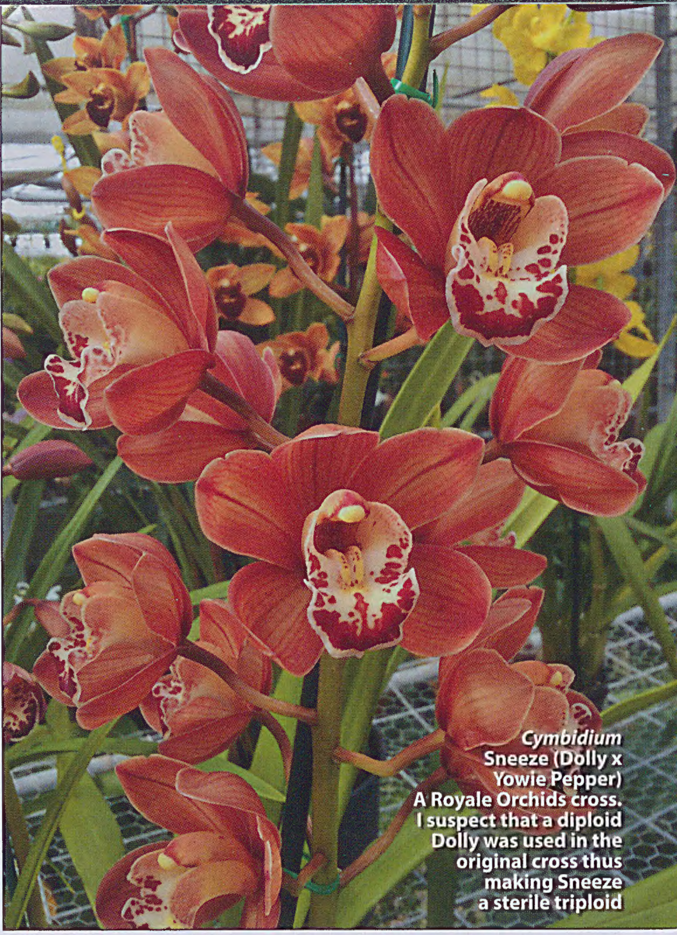
Cymbidium Christmas Mint
(Pistachio Mint x Dolly)
An Andy Easton cross, a very pretty ice green first generation Dolly cross. I tried, unsuccessfully for several years, to use this orchid for breeding, and then moved on as its other main fault was its very large, dense foliage



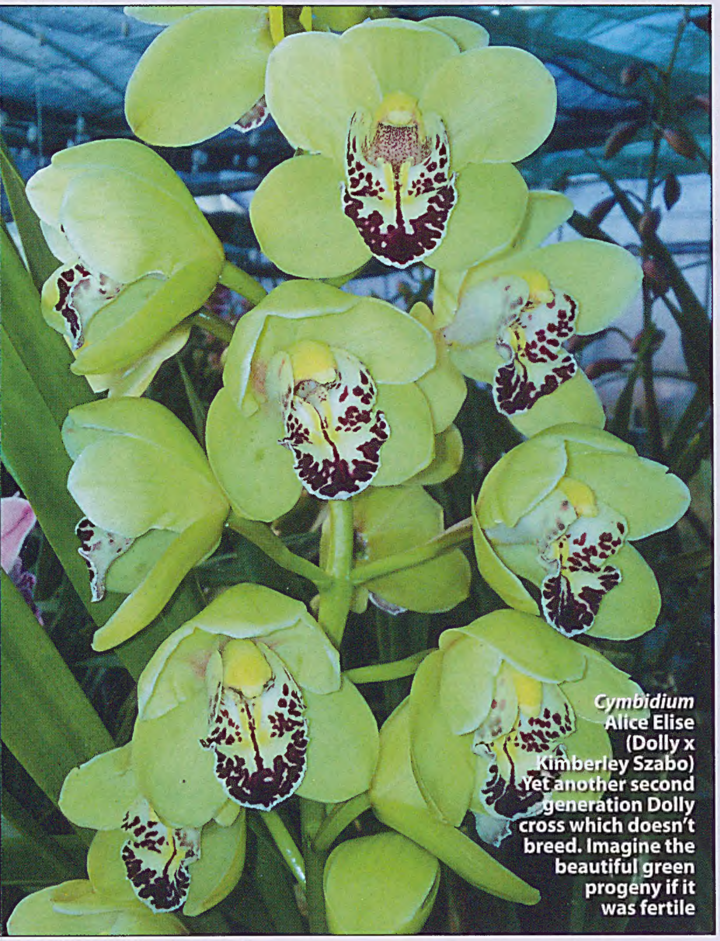
Cymbidium
Tracey Doll
'Sunrise Soiree'
(Dolly x Tracey Reddaway)
An Andy Easton cross, that occasionally produces a very small amount of seed, but generally it won't breed



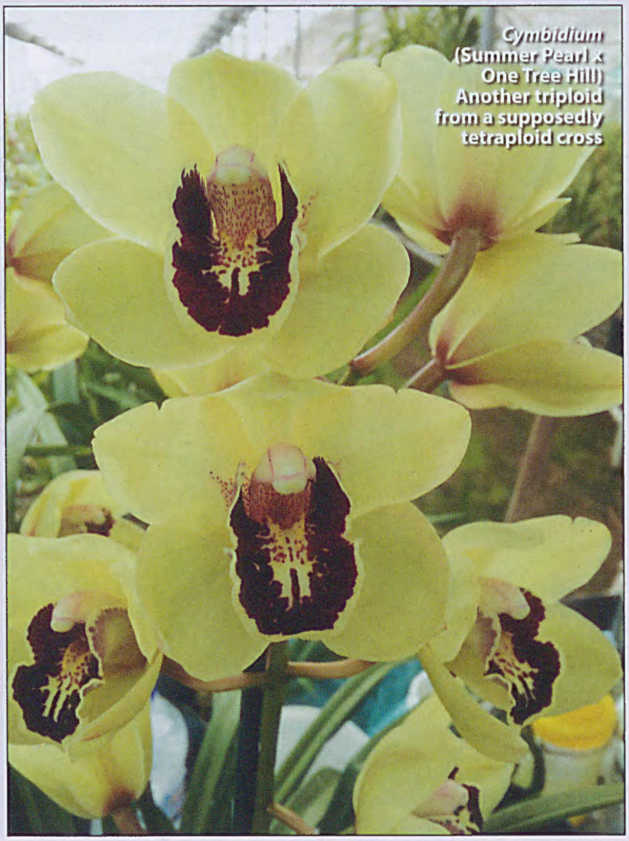
Cymbidium Ann Emily (Sussex Moor x Peteete Doll) An Andy Easton cross, another grex that should breed but doesn't from a hybrid that should be tetraploid



Cymbidium Sneeze (Dolly x Yowie Pepper) A Royale Orchids cross. I suspect that a diploid Dolly was used in the original cross thus making Sneeze a sterile triploid



Cymbidium Alice Elise (Dolly x Kimberley Szabo) Yet another second generation Dolly cross which doesn't breed. Imagine the beautiful green progeny if it was fertile



Cymbidium (Summer Pearl x One Tree Hill) Another triploid from a supposedly tetraploid cross

Alvin Bryant – Australian *Cymbidium* Icon

by Andy Easton

As Alvin approaches his 94th year (he was born 31st May 1926), I am compelled to pen this short tribute to a wonderful orchidist and all-around good man. Alvin had been a schoolteacher when he decided to forgo the security of pension etc. and jump into the orchid fray. I was an undergraduate student at Victoria University in NZ at the time of the World Orchid Conference of 1969, held in Sydney, Australia. I was desperate for good grades so that I could secure a scholarship to the USA for graduate school there, so I had to pass on what would have been a wonderful experience.

Those fortunate enough to attend brought back many happy tales. The entire *Cymbidium* world was a buzz after a presentation on alba or "pure-colour" Cymbidiums by one, Alvin Bryant of Cook Street, Kurnell, NSW, who had recently entered the *Cymbidium* business. Being the studious type, Alvin had followed through and clarified the process for producing anthocyanin-free Cymbidiums. In the scientific details I recall he was greatly assisted by Dr. Julian Coker from Victoria and they are firm friends to this day.

Alvin Bryant in 2019 (with Cecille)

Australia had been eagerly importing English-bred Cymbidiums after World War Two, many of which were diploids. Leo Giles of Wondabah Orchids in NSW had been judiciously searching out colourful diploids and had begun to produce their own unique seedling lines. Stuart Low was famous for their Cattleyas and Paphiopedilums but also worked along some interesting diploid *Cymbidium* lines, generally high colour types. Stuart Low's sister, Eileen, assumed management of the nursery upon his death and I doubt it was chance that her two hybrids of *Cymbidium* Alnwick Castle and *Cymbidium* Durham Castle, part of a Castle naming series, were to become key parents in a new orchid dynasty. Stuart Low Orchids had already produced *Cymbidium* Wiena that was to go on to create *Cymbidium* Sirius that the Australians developed two outstanding hybrids, *Cymbidium* Wyanga and *Cymbidium* Melinga from. Giles would produce *Cymbidium* Coraki 'Margaret', carrying alba genes, from *Cymbidium* Alnwck Castle and Alvin used *Cymbidium* Durham Castle in a cross with an alba-carrying *Cymbidium* Sussex Dawn McBean's hybrid to create *Cymbidium* Sleeping Beauty which was registered in 1970, just after the World Orchid Conference. Both parents were diploid, and *Cymbidium* Sleeping Beauty gave 50% alba progeny.

Alvin was away and running in the orchid world. Right from the start he developed collegial relationships with various NSW orchidists. He shared pollen and plants, he made available improved clones to enter the rapidly developing export cut flower trade and spread his genetic material around the world. Gary Gallup returned to the US full of enthusiasm for alba Cymbidiums and using another *Cymbidium* Sussex Dawn, went on to create his own Californian alba lines. It was more difficult in The Netherlands where climatic constraints have always made alba lines a bit touchy. I don't know why it is that alba Cymbidiums are usually a bit lacking in vigour when compared to their normally coloured counterparts whereas to me, alba Cattleyas can be just as vigorous and durable as the coloured ones? It would be fair to say that even today, few alba Cymbidiums find favour with Dutch Growers though our hybrid *Cymbidium* Falling Passion (of course with three grandparents bred by Alvin!) seems to be a small recent breakthrough.

I first met Alvin in the 1970's. He was competition but honest competition. Already he had been royally cheated by Dr. Vandyke who stole much of his alba material and supplied it to Merv Dunn at Valley Orchids. Was Alvin bitter about this? Certainly not openly so, as far as I could see. For my part I would have been so dirty on both Vandyke and Dunn!

To be blunt, Bryant Orchids were average growers, Alvin was always experimenting and chopping and changing and that likely impacted on his overall cultural success. The nursery was not elaborate but always welcoming. Let me tell an Alvin story.... We all have them. First of all, it was educational. The culls were all lined up one morning when I visited in October. About 60 plants of which at least 45 were albas with a smattering of pinks, reds and bronzes. I was living in the USA where every alba sold at a premium. If I had 60 culls available and six were albas, the customers would grab those first. At Kurnell, it was the exact opposite. The coloured ones went and most of the albas were left.

My eyes were drawn to a green *Cymbidium* Sleeping Beauty which seemed late-blooming, with the varietal name of 'Vivid'. I asked to buy it and a great back and forth ensued: "take it" said Alvin, "no way, I want to pay for it" was my response. You can guess who finally won out. I couldn't risk smuggling it back via New Zealand to the US so I had to leave the plant with Clive Halls for over a year until I could get paperwork etc. Fortunately, Clive did not charge boarding fees! Why did I want this specific plant? I needed this alba as part of my hybridising plan. I crossed it with *Cymbidium lowianum* 'Concolor' which remade a Bill Bailey hybrid named *Cymbidium* Golden Cascade. Mine were however all greens which was what I wanted. Then I managed, with some difficulty, to get via my dear friend Alan Napper, some pollen (one measly flower) of *Cymbidium tigrinum* from the late Jim James, a greedy, pot-hunter who always had a *Cymbidium tigrinum* covered in flowers! The crossing onto *Cymbidium* Golden Cascade took, the cross was treated (with Colchicine in those days) and from the resultant *Cymbidium* Golden Tiger grex, registered in 2004, over 30 hybrids have emanated. That "Alvin acorn" is typical of someone who has always put far more into orchids than he has ever taken out.

When Alvin sold the Kurnell NSW property in 2010 and moved to Queensland, many thought he would wind down rapidly. Far from it. With his beloved Cecille, he is still very physically and mentally active. His *Cattleya* lines which had been on a back-burner in NSW are coming to a rapid and exciting fulfilment. Alvin has had a dream to produce Cattleyas on stems, essentially imitating the productivity of a *Cymbidium*. Like others I wondered if maybe the concept might be a bit fanciful and if he would have enough time to see results. To ensure all this hybridising progress is not lost, Alvin has freely shared all his genetic treasures with Ross Maidment and other *Cattleya* aficionados. But it is clear from the photos now appearing regularly on Facebook, a distant goal has leapt in reality! A legacy of value for both enthusiasts and commercial cut flower folk too.

***Cymbidium* Albryant 'Superstar'**

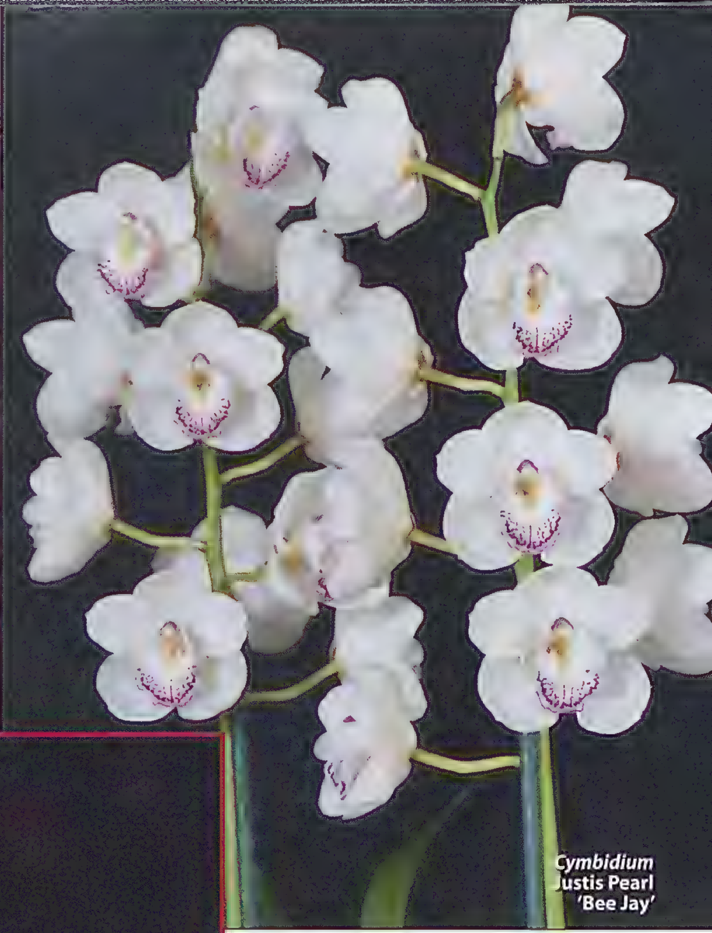
Cymbidium Kurunulla 'Maestro'

Now this man has had to endure trials that would have destroyed normal humans. The accountant entrusted with holding his retirement resources turned out to be a thief and Alvin has fought unsuccessfully for a just recompense. Is he vindictive and bitter? I haven't heard any emotion stronger than acute disappointment! Amazing!

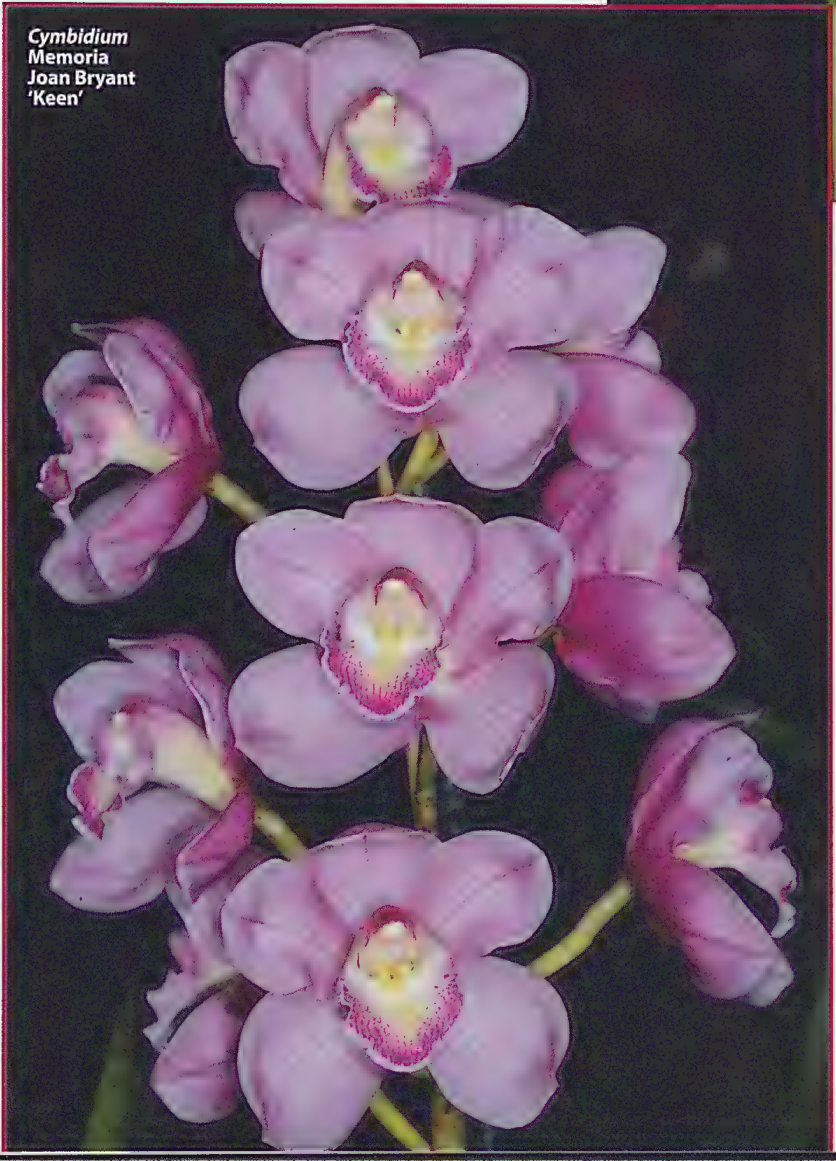
Now his son, Greg, that Alvin let take over Bryant's Orchids and his *Cymbidium* program and I have had some very difficult moments. But who was the peacemaker? Why none other than Alvin who extracted a promise from us both to bury the hatchet (and not in each other's skulls!) and keep a distance from each other in life and in print. This seems to be working just fine. In fact, I can attest that I have never ever heard Alvin say anything derogatory or spiteful about anyone else in the orchid world... ever! He may be a great "bottler-up" of his feelings but whatever he does, he is respected worldwide for his genuine niceness.

Cymbidium Cronulla 'The Khan'

I was actually sorry to see the remnants of a once great Cymbidium Society of America (CSA) award the 2019 Hudlow Medal to Alvin Bryant (and Greg Bryant) this past March. Sorry because Alvin should have had it twenty years ago and I take part of the blame for inattention back when real orchidists ran the CSA. If Don Wimber, Ernest Hetherington and Keith Andrew were deserving winners then surely the name of Alvin Bryant is very much in that company! The bunch now wouldn't know Alvin at all nor could they identify one of his famous contributions to Cymbidiums. Alvin Bryant made *Cymbidium* Arcadian Sunrise, *Cymbidium* Winter Wonder, *Cymbidium* Rose Armstrong, *Cymbidium* Sylvania, *Cymbidium* Trinity Hall, *Cymbidium* Poetic Fair, *Cymbidium* Cronulla and maybe the best of all, *Cymbidium* Joan's Charisma 'Vanity'. I am sure that in another couple of decades, intelligent hybridisers will still be talking about the influence of and using JCV for, impeccable standard whites.



***Cymbidium* Justis Pearl 'Bee Jay'**



***Cymbidium* Memoria Joan Bryant 'Keen'**

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Cymbidium
Joan's Charisma
'Vanity'

Yes, Alvin Bryant did receive an Australian Orchid Council Honorary Fellowship in 1981 but look what he has done since then! You Australians are blessed with a living treasure... Send him an email, post a congratulatory message on Facebook, phone him up or just pop a note in the old snail mail. I hate it when people give these great orations at funerals, when just a few words while the deserving is alive is 1,000% more meaningful.

Alvin, I salute you, you are a wonderful friend and always a positive influence! ■

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New Cymbidiums at Barrita Orchids

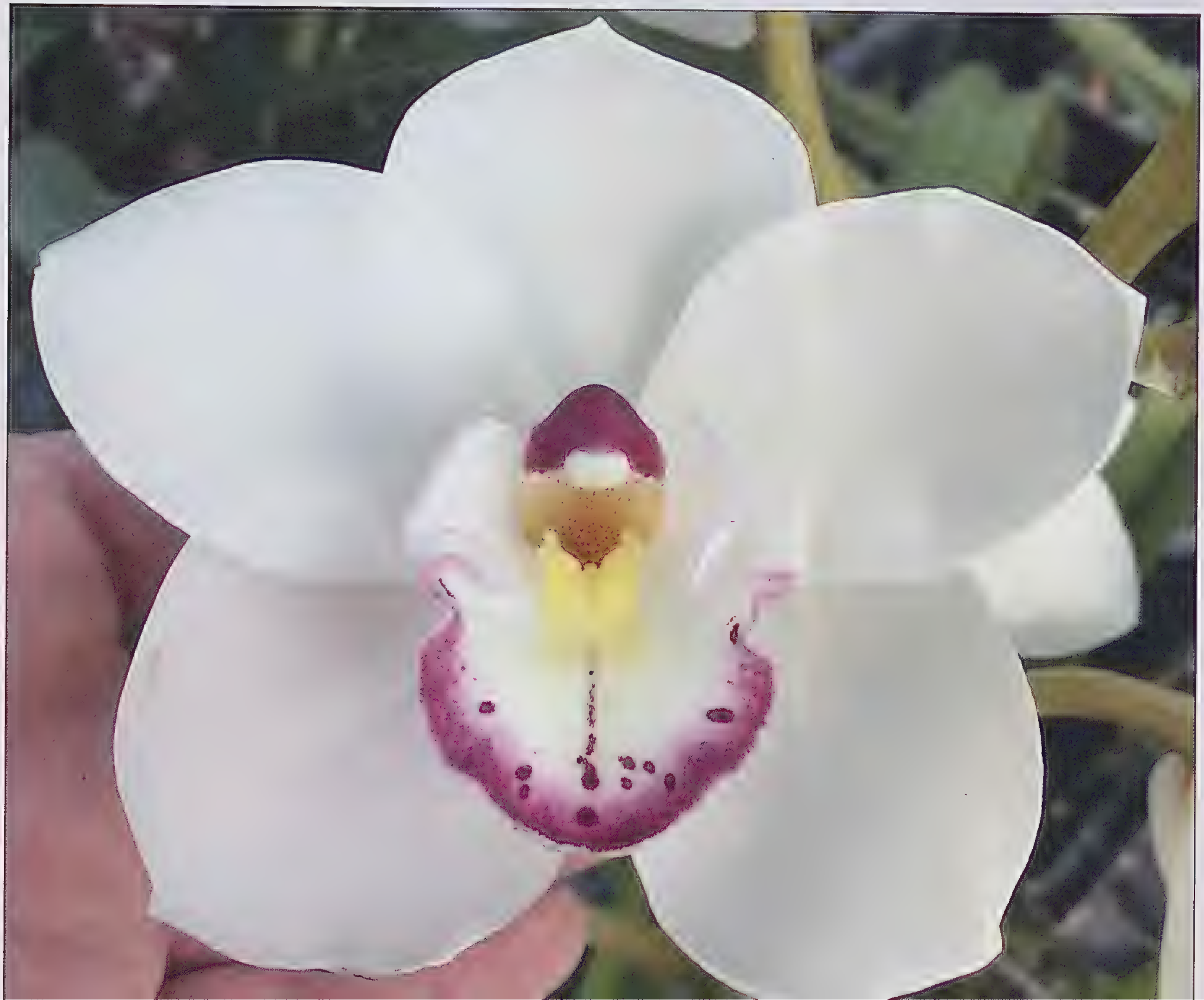
Text and photos by Scott Barrie

One of the most important aspects to commercial *Cymbidium* growing is flowering time. Classic flowering time for Cymbids is Spring, while my season runs from April to September, with a peak time in August. This peak begins a month earlier than we experienced during the 1970's and 80's due to a breeding program dedicated to extending the season.

When we evaluate a flower, this season extension shapes our expectations. Cymbidiums that flower pre-Mother's Day are still in their developmental infancy in comparison to August flowering plants. Therefore, when we look at this little group of first bloom seedlings, two from August 2018 and two from April 2019 our excitement is due to their flowering time rather than how they fit into a judging system.

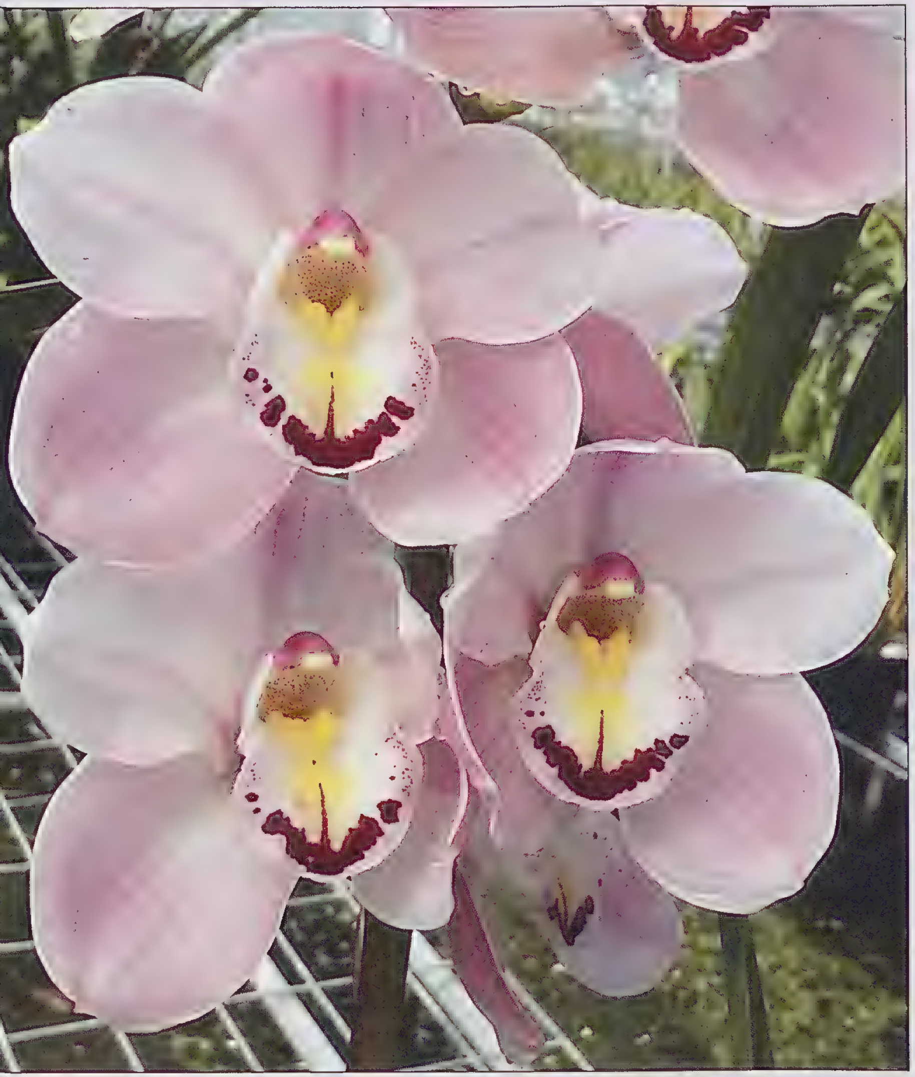
▼ *Cymbidium* Barrita Aphrodite 'Sarah'

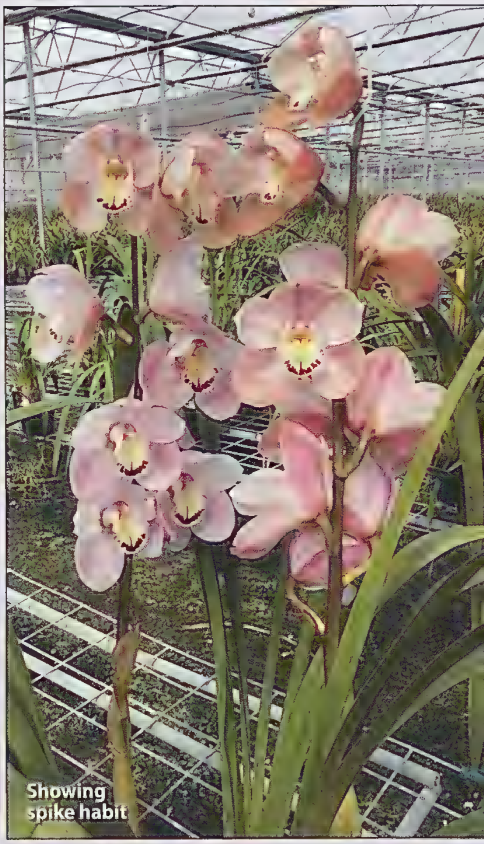
(Kulnura Venus x Kulnura Alchemy). Cross made 2011. Registered May 2019. Flowering in August of 2018. This flower typifies the expectation for a high pedigree *Cymbidium*. The family tree of this grex is a who's who of my favourite Cymbidiums and a fifth generation Barrita hybrid. This is a spectacular flower! I've written before about the importance of non-staining colours in the high light intensity of Australia. This flower is the perfect example. The white of this flower will retain the magnificent clarity no matter how much light is supplied to it. And the substance, you'll have to take my word for it, is like sheet metal.



▼ ▶ *Cymbidium* Barrita Patriot 'Dianne'

(Darryl's Pride x Bing Santa). Cross made 2012. Registered May 2019. Flowering August 2018. This large chunky pale pink is a great example of a modern commercial flower. It would do well on show tables and has the beauty, productivity and spike habit expected to fit into a commercial program. The contrasting burgundy spotting on the lip tip is very popular at the moment.

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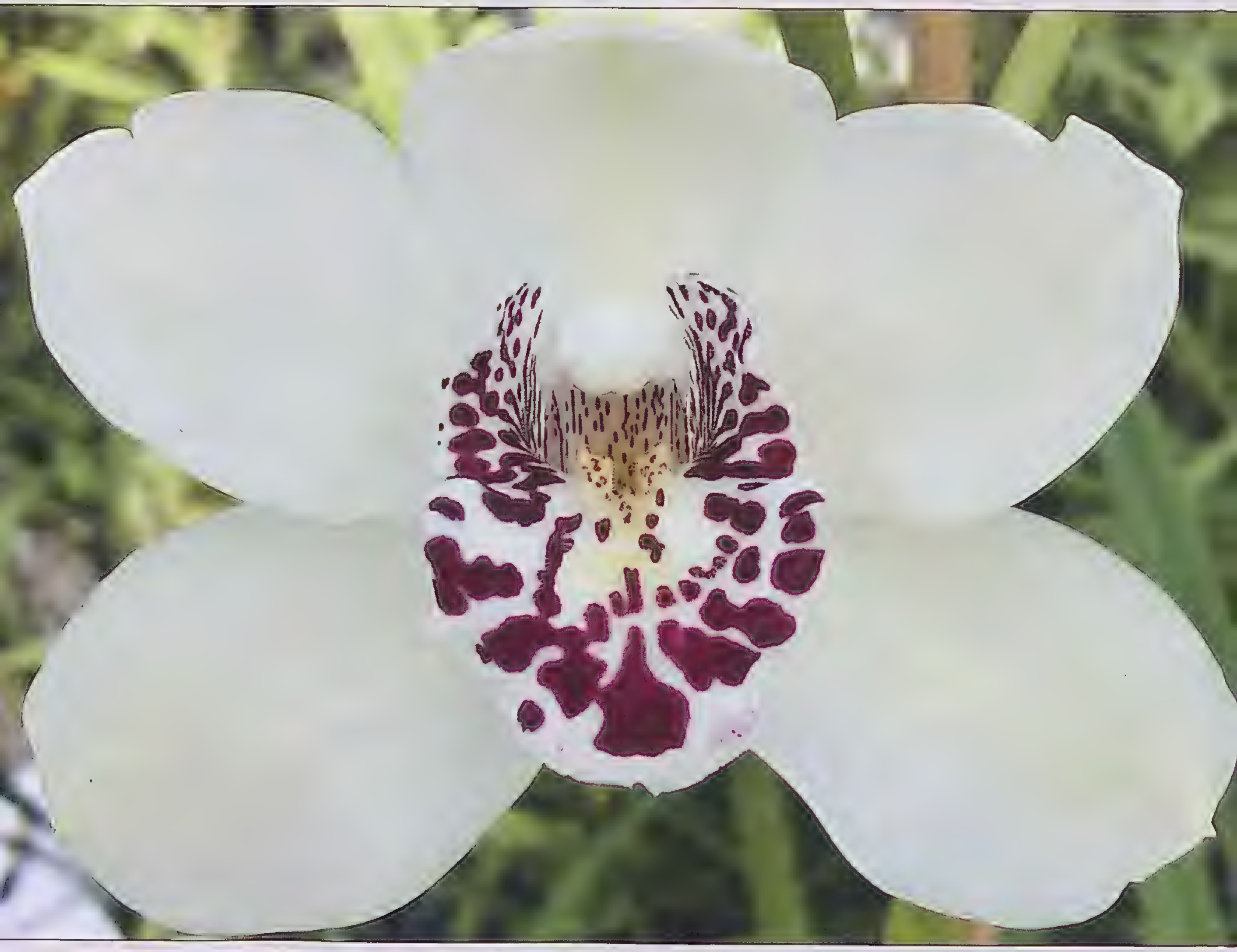
▼*Cymbidium* Barrita Summerfire 'Bright Spark'

(Barrita Ridge x Kulnura Incandescence). Cross made 2014. Registered May 2019. Flowering April 2019. This plant flowered from a two-bulb plant in a 125mm pot. That's a good start towards a future as a commercial plant. Looking at its genealogy in Orchid Wiz, we can see it is the combination of 12 species. Bringing a wonderful melting pot of genes together to give an outstanding flower for flowering time. Like the *Cymbidium* Kulnura Aphrodite, this is another non-staining flower. I can't wait to see it on it's next flowering.



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▼ *Cymbidium* Barrita Nottingham 'Sheriff'

(Barrita Medal x Kulnura Robinhood). Cross made 2014. Registered May 2019. Flowering April 2019. First blooming with two spikes on its leading bulb. It is interesting that of the top four contributing species to this hybrid, being *insigne* 33.9%, *lowianum* 15.3%, *ensifolium* 10.9% and *hookerianum* 10.7%, it is only *hookerianum* that shows the non-staining trait. While this plant is unlikely to trouble the judges table, it's spike production, clear colour and flowering time make it a winner in the commercial game.

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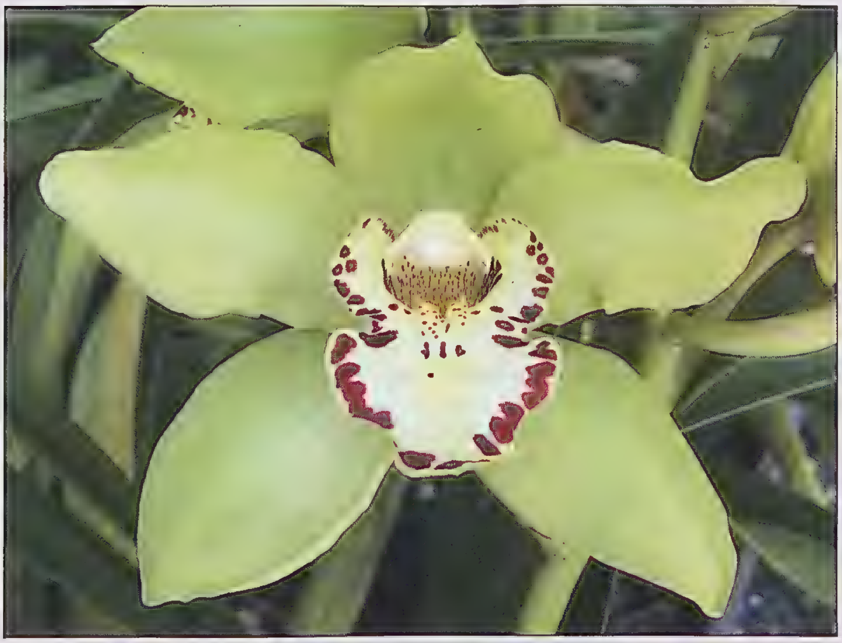

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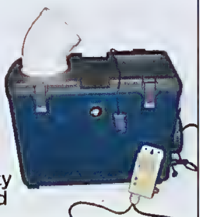

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Prasophyllum gravesii (Orchidaceae) a new leek orchid from coastal sandhills of Eyre Peninsula, South Australia

by Robert J. Bates

Abstract

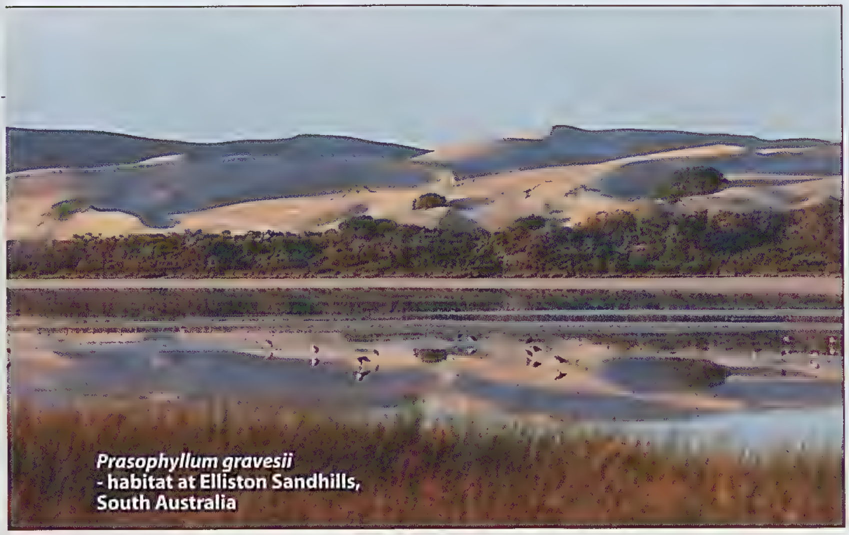
Prasophyllum gravesii with affinities to *Prasophyllum odoratum* R.S Rogers is described here as new, compared with similar taxa, images included, and notes provided on its distribution, ecology, recognition and conservation status.

Key words

Orchidaceae *Prasophyllum gravesii, Prasophyllum odoratum*, new species, South Australia, Australian flora.

Introduction

The Eyre Peninsula of South Australia has long been regarded as a botanical hot-spot since Robert Brown visited with Matthew Flinders on *The Investigator* in March 1802. Only in the last 30 years has the remarkable orchid diversity in the region become better known. Some thirty new orchid taxa have been described, mostly by D.L. Jones but also R.J. Bates, including *Prasophyllum* species (Jones & Bates (2017). More undescribed species have been discussed and illustrated in Bates (2006-2018). Most discoveries were due to the efforts of local orchid enthusiasts.



***Prasophyllum gravesii* - habitat at Elliston Sandhills, South Australia**

Taxonomy

Prasophyllum gravesii R.J. Bates ***sp. nov.*** With affinity to *P. odoratum* R.S Rogers but differing in its smaller flowers, much smaller, narrower, hardly crenulate, almost smooth white labellum with right angle bend about the middle, not folded back on itself as in *P. odoratum*. The incurved, almost smooth, stiff labellum margins of *P. gravesii* are also distinctive, quite unlike the thin textured not incurved, crenulate margins of *P. odoratum*. The small stiff, parallel, falcate, smooth-edged and pointed petals are also distinctive, not resembling any other South Australian species. They are very different to the lax, crenulate, spreading, rounded petals of *P. odoratum*. *P. gravesii* flowers a month earlier than *P. odoratum* and a month later than *P. catenemum* D.L. Jones which occurs further west. Neither of these other species occurs on sand hills of the littoral zone.

Type: **South Australia**, Eyre Peninsula, Elliston Sandhills, Oct. 2018, *Shane Graves* sub. *R.J. Bates 97626*, (holo AD).

Description: *Tuberous, terrestrial orchid* growing singly or in loose groups. *Tubers* not seen. *Leaf* terete, 25-35 cm long, 2-4 mm wide, mid green, *base* 3-5 mm across, red or purplish: *free lamina* to 25 cm long, suberect, usually senesced at anthesis. *Inflorescence* a mostly narrow, uncrowded to moderately dense spike 25-35 cm long, mostly within the hollow leaf; consisting of 10-25 flowers. *Floral bracts* ovate 3-4 mm long, c. 3 mm across loosely sheathing the ovary, *apex* sub-acute. *Ovaries* obovoid 6-7 mm long, 3-4 mm across, flattened dorsally and set at about 40 degrees to the rachis. *Flowers* sessile, 8-12 mm long, 7-8 mm across, sweetly scented, *sepals* red-brown with pale margins, sometimes pale inside, *petals* white with few magenta tints, *labellum* lamina white, *callus* yellowish to green. *Dorsal sepal* porrect mostly horizontal except for decurved apex, *ovate* lanceolate, 8-10 mm long, 3-5 mm across, with three brown lines or striae on lamina, apex acute to acuminate. *Lateral sepals* free, divergent, obliquely erect to slightly sigmoid, linear lanceolate, 8-12 mm long, 2-3 mm wide, channelled, margins pale, often incurved, *apex* acute to obtuse, not bidentate. *Petals* parallel horizontal, broadly linear, not spreading, sinuate, 7-10 mm long, 2-3 mm across, clear-white with a rosy to purplish median band terminating well before tip; *apex* slightly incurved, obtuse to subacute. *Labellum* shortly stalked, porrect in the basal half then bent at right angles, distal half erect, not reaching the sinus of the lateral sepals.

Labellum lamina ovate-lanceolate in outline when flattened, 7-10 mm long, 4-5 mm wide, constricted just beyond the bend, *proximal half* broadly elliptical; margins entire to slightly irregular, thin textured, sightly decurved, *distal half* more or less triangular, gradually tapered to the apex, margins waxy, irregular or slightly crenulate, apex subacute to obtuse. *Callus plate* situated at the bend, less than 2 mm long, c. 1.5 mm wide, hardly raised, tongue shaped, *base* yellow green, the rest white; widest at the centre, with a narrow median groove. *Column* less than 2.5 mm long, c. 1.5 mm across, exposed by the wide expansion of the sepals; *appendages* oblong, c. 1.5 mm long, 0.5 mm wide, white, *apex* obtuse; *basal lobe* obscure. *Anther* ovate, c. 2 mm long 1.2 mm across, pinkish. *Pollinarium* c. 2mm long, *viscidium* orbicular, c. 0.2 mm wide, white to palest pink; *hamulus* 0.5 mm long; *pollinia* clavate c. 1 mm long, yellow, sectile. *Stigma* quadrate c. 1.5 mm long, 1.6 mm across, the rostellum longer than the appendages. *Capsules* not seen.

Distribution and ecology: Endemic to South Australia on Eyre Peninsula, in coastal sand dunes, near or in the littoral zone but so far only collected near the sea port of Elliston which has some of the tallest dunes on the South Australian mainland outside of the Coorong. This kind of treeless white sandhill country has been poorly botanised. *Prasophyllum gravesii* occurs amongst low sedges in the protection of shrubs, growing with other possibly unnamed leek orchids and the common sandhill onion orchid *Microtis arenaria*. Flowering commences in late September and continues through October; native bees the chief pollinators.

Recognition: although many members of the *Prasophyllum odoratum* complex occur on Eyre Peninsula including *Prasophyllum odoratum* most have large crenulate labella. *Prasophyllum gravesii* in contrast has a narrow, hardly crenulate labellum differing from the lip of *Prasophyllum odoratum* in not folding back on itself. A more common coastal leek orchid *Prasophyllum catenemum* from to the west and extending as far as Ceduna flowers in late August early September and does not have a clear white labellum. No other South Australian *Prasophyllum* has a smooth white lip like that of *Prasophyllum gravesii*.

Etymology: named in honour of Shane Graves, the discoverer of this distinctive new species. Shane, a citizen of Elliston has been a photographer and student of native orchids since 2016 during which time he has discovered many new orchid species from several different genera, often with other local orchid enthusiasts.

Conservation status: at present known only from one site, but as there are large areas of similar habitat along the vast Eyre Peninsula coast yet to be searched, one would expect it at other sites after good winter-spring rainfall.

Acknowledgements: I thank Juergen Kellermann (AD) for incorporating specimens; Shane Graves for both the type collection and images, and landholders Nigel & Debbie May for permission to search their property and collect orchids.

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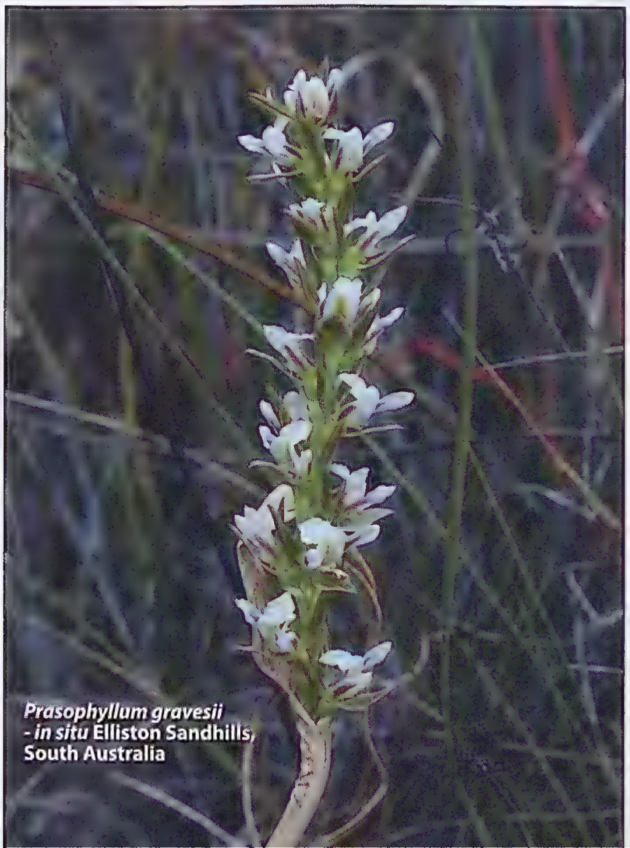
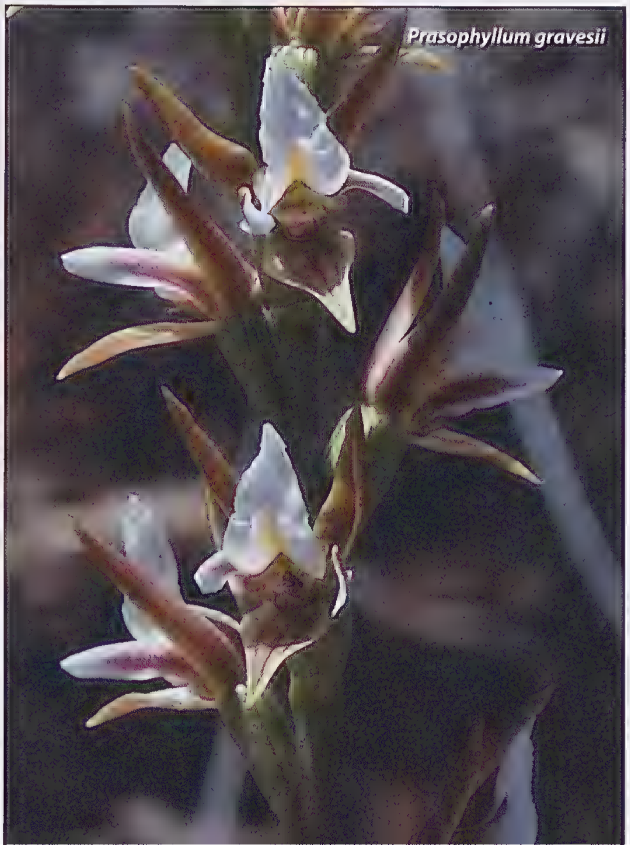


***Prasophyllum gravesii* - *in situ* Elliston Sandhills, South Australia**



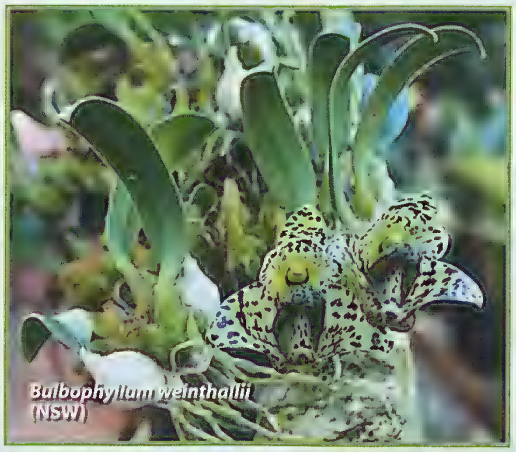
Prasophyllum gravesii

A Bit About...
Bulbophyllum weinthalii

Text and photos by Gerry Walsh

It would no doubt surprise a lot of native orchid growers to learn that *Bulbophyllum weinthalii* has the largest flowers of all the *Bulbophyllum* species of Australia. It could be argued that *Bulbophyllum longiflorum, Bulbophyllum baileyi* and a few others might have longer, or more spidery segments, but these warmth-loving species have nowhere near the mass that a nice big bloom of *Bulbophyllum weinthalii* does. In fact, the best-sized blooms on a plant of *Bulbophyllum weinthalii* are actually larger than the pseudobulbs of the clump itself. Now that is not a bad effort for a temperate species... which are usually belittled by most of those big gaudy tropical things.

These magical blooms can get up to 20mm across and the best-shaped flowers are nearly round – there is nothing at all dainty about *Bulbophyllum weinthalii*. This delightful species escaped detection until 1933, or formal scientific description at least. This is something of a surprise to me because *B. weinthalii* is 100% reliant on the Hoop Pine (*Araucaria cunninghamii*) for its survival. Once the mighty Red Cedars were cut over, old time timber getters turned to the Hoop Pine for their harvest. So there must have been a heap of good orchid pickings for the early botanists to dribble over. How could they have missed *Bulbophyllum weinthalii*?



Bulbophyllum weinthalii (NSW)

I have not read or heard of it being found on any other tree species, but I did find a small clump growing on rock at Dorrigo in 1983. This exception to the rule may have actually fallen from one of the many giant Hoops above in which *B. weinthalii* was reasonably abundant. Whatever the case, it was certainly well attached to its stone host and had been in position a long time.

Bulbophyllum weinthalii was thought to occur from the Dorrigo Plateau, on the mid-north coast of NSW, up to just over the border into southern Queensland. That was until Denis Johnson and I found it to be quite common way up in the Calliope Ranges west of Gladstone. This tremendous find extended the range of *Bulbophyllum weinthalii* by 400 kms. The details were recorded in *The Orchadian* in 1993. David Jones, the botanist, has raised it to the rank of sub-species *striatum*.

The Hoop Pines on which it makes its home are only found high in the ranges a fair way from the coast. There are a few spots where big Hoops grow at low altitude and close to the coast. Despite supporting a plentiful orchid flora, they never have *Bulbophyllum weinthalii* on board. And yet, in the ranges, you stand a fair chance of finding it underneath any Hoop Pine that has reached old age. Young Hoop Pines will not play host to *B. weinthalii*.

Bulbophyllum weinthalii does not appear to form large clumps or sheets in the wild, as do some members of the genus. A dozen or so bulbs is the normal size I guess and half of these may be nearly dead and withered. The biggest clump I have seen was found on the slopes high up on Mt Lindesay, which straddles the NSW/Queensland border, at a point a hundred kms from the coast. It was about as big as a dinner plate and grew on a gnarled old burl of a huge Hoop Pine limb. Strangely enough, this was the only plant located on that mountain despite three separate visits over the years. And there are many grand old Hoops in that locality so finding suitable Hoops does not guarantee finding *B. weinthalii*.

Until discovering it up near Gladstone, by far the most likely place to find this orchid was around the Dorrigo area. There are a few spots up there that support good stands of ancient Hoops and whenever I pass through I am always scheming up ways to have a search under them. Usually a piece of *Bulbophyllum weinthalii* will be found. And it goes without saying that the only method to adopt to find *B. weinthalii* is to find the Hoop Pine first. Search the ground under it, looking for the bigger old mossy limbs that occasionally crash from way up in the canopy. I have never seen a clump growing anywhere near the ground – even up in the mighty Calliope Range where it can only be described as abundant.

Having grown this northern form of *Bulbophyllum weinthalii* subsp. *striatum* for years now, I can make the following observations. Firstly, the northern form has a different looking flower to the type, or southern form. It is more pointed in the sepals and not as well filled in. It has more striping on the basal half of the segments. The sepals reflex far more than the southern form. And it flowers much later, from May to August, than the southern form does in March to April.

The big plus for the southern forms is, in my own opinion, they have the more attractive flower... or at least the better ones do. They tend to be more rounded and meatier and the background colour tends to be stronger. The northern form is slightly transparent in the background colour.

From a horticultural point of view, the northern form is far easier to grow in captivity. It does not suffer the problems that plague the southern form and make it notoriously difficult to grow and flower. With the southern form it is hard to keep leaves on board and even harder to grow fat pseudobulbs on the clump. The initial burst of roots gives false hope to the grower but they soon stop dead in their tracks.

If they have attached to a mount they may well separate away. A specimen will maintain itself for a year or so but then it will slide into a downward trend and lose vitality, as well as its leaves. A newly collected plant will flower the first year and maybe the next but you would be pretty lucky to see any blooms beyond that. It just seems that the southern forms of *Bulbophyllum weinthalii* refuse to put in the effort.

Bulbophyllum weinthalii subsp. *striatum* simply romps away, the bulbs get fatter each year, very few leaves drop off prematurely and they tend to flower their heads off in comparison to the southern ones. And of course having a few pieces to experiment with has enabled me to work out the best way to grow it. Some actions I have taken have been good and others have been useless to say the least. Basically, if you want to grow *Bulbophyllum weinthalii* well, you must start with the right host.

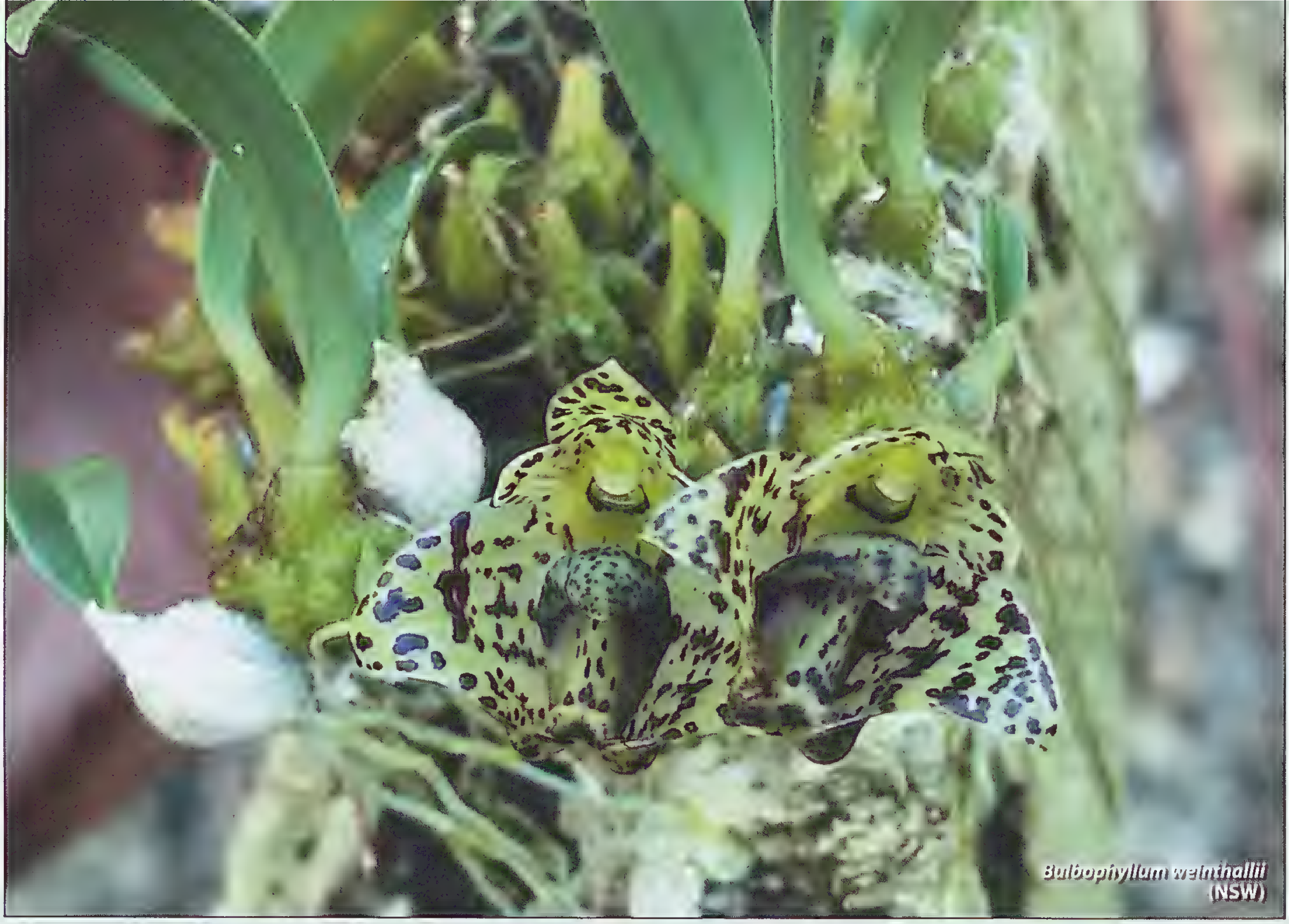
I have tried many hosts over the years and particularly of late. I tried old pieces of hardwood palings and the results were not good. The roots would not stay attached to the spongy surface. Paperbark is no good either. The roots just do not want to attach to it. I have had good results with cork, even that granulated corkboard proved to be a good host. Natural cork was by far the best of course. Once the roots get into a deep damp crevice of cork they tend to lose the ability to attach firmly to it. So use a smooth bit right off.

Tree fern fibre proved rather unpredictable to start with. But after some time I was able to pick just which situation the *Bulbophyllum weinthalii* liked and disliked. For starters, I only use *Cyathea* fibre, no *Dicksonia*; its stays too wet. Pieces of *B. weinthalii* attached to the natural outer layer of the tree fern fibre did not perform well. But pieces attached to sawn blocks romped away. It does not like a spongy damp substrate at all. So I now put it through the saw-bench and remove the outer 2cms of spongy material. Bingo! The roots now cling like glue and the new growths are jumping out of their sheaths.

Anyone who has had something to do with Hoop Pine will know two things without doubt. Firstly, the timber will rot away in no time once a tree or limb hits the ground.

Bulbophyllum weinthalii (NSW)

Bulbophyllum weinthalii (NSW)



Bulbophyllum weinthallii (NSW)

Secondly, the bark will lie around looking like pipes for years after the wooden centre has rotted. This is what gives this tree its common name, Hoop Pine. The bark is hard and durable, sometimes smooth and sometimes rough, but always forms itself into hoops, from the smallest limb to the widest trunk. It stays hard and almost water repellent for many years before it inevitably collapses. Even the mosses that grow on the limbs are usually the long old man beard types that like it drier. So, applying this knowledge to the bush house situation, it is a logical progression to grow plants on non-spongy surfaces.

Bulbophyllum weinthalii is one species that I believe is worth keeping the fertiliser up to. Those large, fat bulbs and heavy flowers really do need nourishment if they are to perform at their best. While you may be able to get away with a lazy fertiliser regime with a lot of other species, you just cannot get away with it with *B. weinthalii*. Your only problem will be finding a piece to start with. Hopefully it will soon be available in flask because this is an orchid that seems to set seed pods easily. Flasking has proven to be difficult and no success has been had to date.

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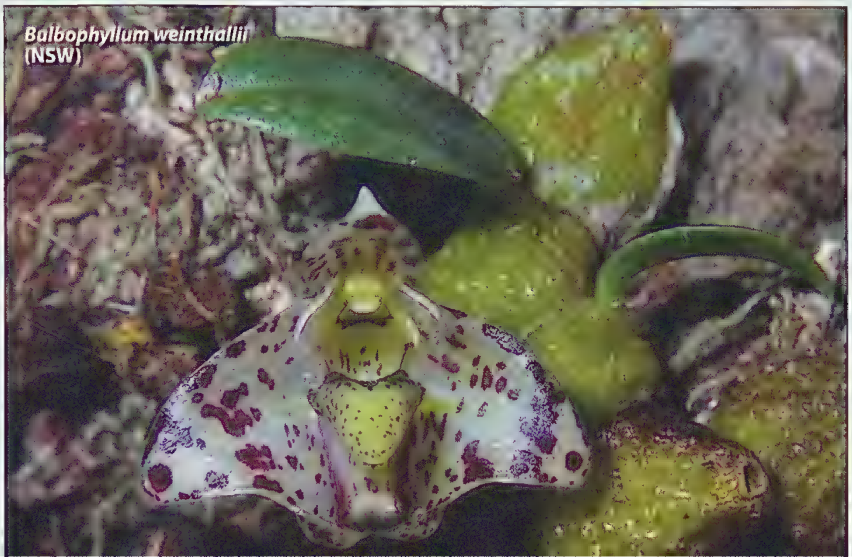

Bulbophyllum weinthallii (NSW)

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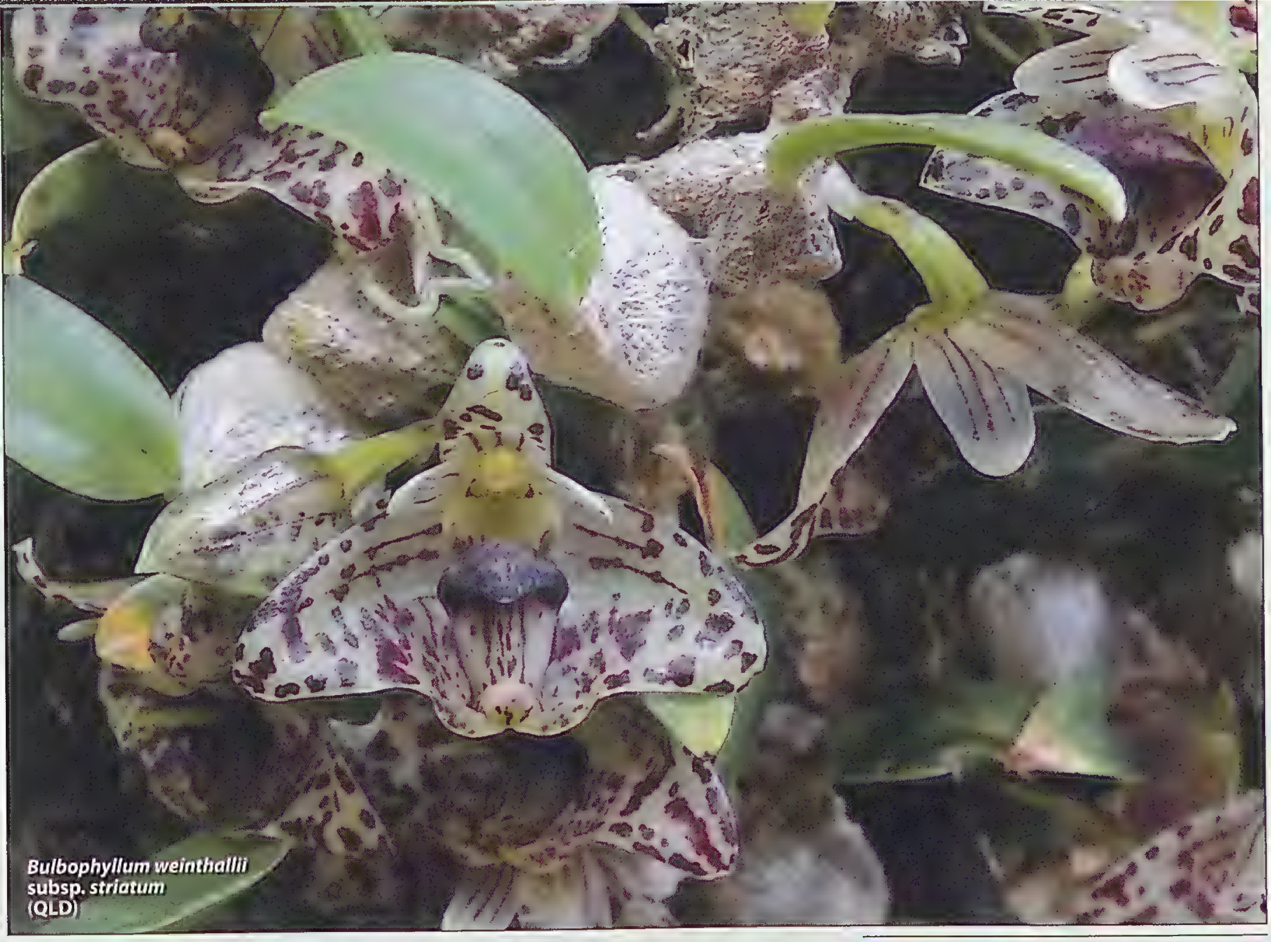
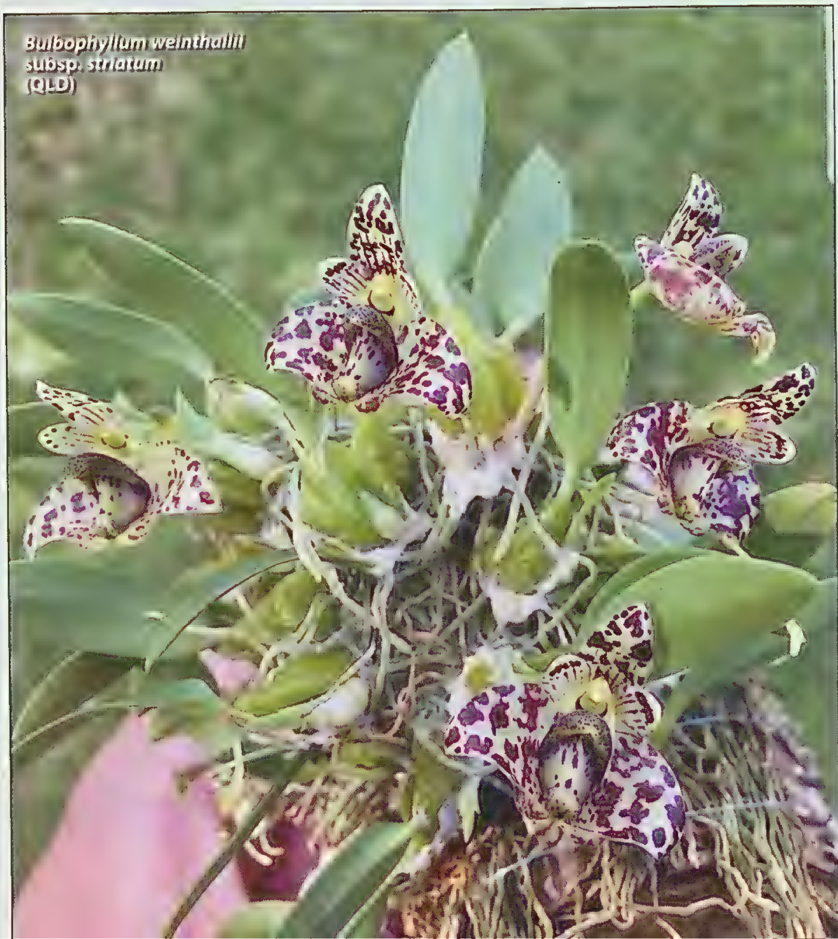


***Bulbophyllum weinthallii* subsp. *striatum* (QLD)**



***Bulbophyllum weinthallii* subsp. *striatum* (QLD)**

Australian Orchid Review

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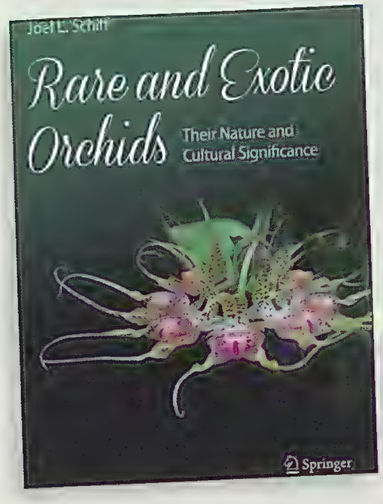
NEW ON THE BOOKSHELF

– Book review by David Banks



Rare and Exotic Orchids

Their Nature and Cultural Significance

by Joel L. Schiff

ISBN: 9783319700335
Binding: Hardcover ($65.00), Paperback or eBook version ($38.00)
Pages: 186, Dimensions: 216mm x 286mm
Available from Amazon.com or as a download from dymocks.com.au

Comprising over 28,000 different species, orchids are by far the largest flowering plant family on Earth. Every year, new species are being uncovered in the wild, so this number has only continued to blossom. The five main chapters cover the History of Orchids, What are Orchids?, Exotic Appearance, Deviant Sex and On the Scent.

This book is intended for those who wish to learn more about the multifaceted nature of these amazing plants. It covers many different aspects of orchid study, from its cultural history to its evolutionary development and from its first discoveries to ongoing scientific research. No matter your specialty or level of orchid expertise, you will find in this book new and fascinating facts and stories that will make you gasp, laugh, and read on. Through the many exotic and beautiful pictures permeating these pages, you will come to know something of the infinite diversity of this plant family and at last learn why so many orchid growers and fanatics have embarked on this same endless path. It explains how and why international cultures past and present revere these flowers. It features many high quality images of exotic orchids, some of which do not appear in other orchid books. It also discusses the latest DNA research on orchids and their deceptive evolutionary behaviours.

The pleasure in *Rare and Exotic Orchids* lies in its ability to reach into general-interest audiences with little prior background in botany or orchids. The result creates a lively blend of history on the discoveries of new exotic orchids and how individual plants captured different hearts and minds to early explorers and scientific insights, supported by lovely colour photos throughout, that will attract even casual orchid fans or newcomers to the topic. Joel L. Schiff brings to life not just the science surrounding orchids, but the human process of recognising, cataloguing, and appreciating them.

Orchid aficionados will find *Rare and Exotic Orchids* different approach eschews the more common attempt to classify and cover thousands of species in favour of a more concentrated profile of selected exotics which represent some of the rarest plants on Earth.

(Joel L. Schiff {email: jschiff@xtra.co.nz} was born in Chicago and has a PhD in mathematics from the University of California, Los Angeles. He spent his career at the University of Auckland in New Zealand and has written three books on various mathematical subjects. He has also been a successful part-time asteroid hunter and was the founder and publisher of an international journal on Meteorites, for which he was awarded the 2012 Service Award from the International Meteoritical Society. Orchid species and their history is another of his varied interests.)

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Liparis viridiflora – is it an "Australasian" Species?

Text and photos by David Banks

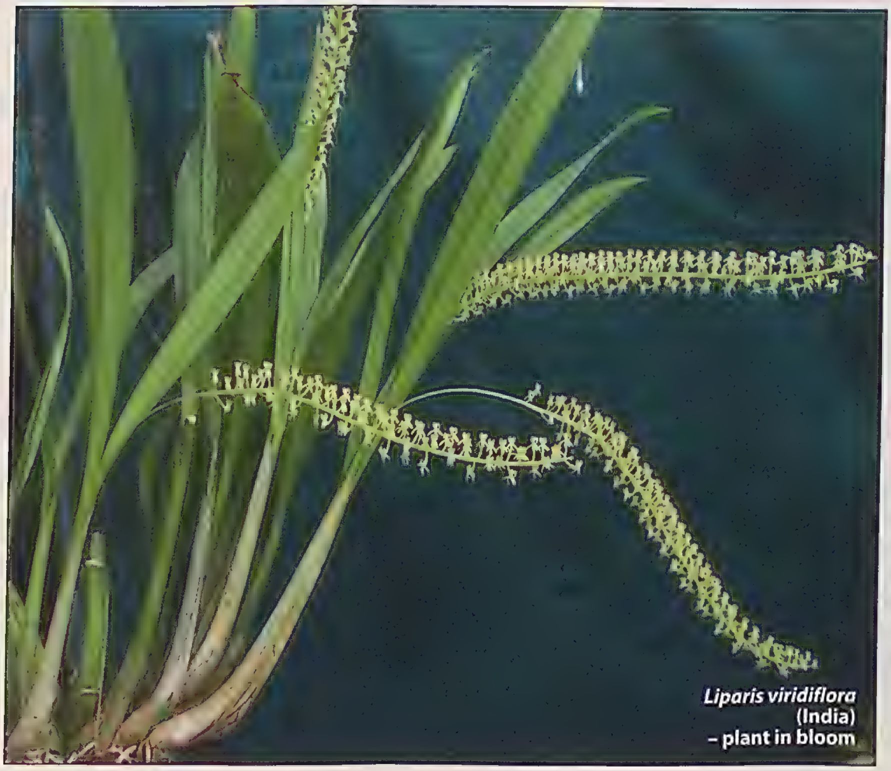
At a May monthly meeting of ANOS (Australasian Native Orchid Society) Sydney Group several years ago were a number of plants benched by Brian Spurrs in the Australasian Species class as *Liparis viridiflora*. Years later, the same plant gets benched, in the same class with the same name, but by different people! I asked Brian the origins of his plants and what country indeed he thought they came from, as seeing it at an ANOS meeting surprised me!

Brian thinks his plants came from a grower in ANOS Warringah Group, and indeed apparently John McAuley benched the same species at their meeting, stating that it also comes "from New Guinea". I was to find out that John had used the Internet based Royal Botanic Gardens (Kew), *World Checklist of Selected Plant Families* to justify benching it in the Australasian class.

I know there are many who see this Kew/RHS listing as the final word. However, this is often not the case, as there are numerous inconsistencies in the way various orchid genera are treated and there are errors at specific level and suspect recorded distributions that have gone undetected. Mind you, there is a wealth and massive amount of information there and it is a very useful tool. But unless one checks multiple references and has an open approach when researching such matters, it is very easy to simply keep repeating misinformation to the point where some regard it as fact.

I first saw this orchid at a Cumberland Orchid Circle meeting in the early 1980s. I remembered it because it was the first time that I had seen an exotic *Liparis* species, and it had that similar unpleasant stale smell. Back then, I was only really familiar with the local *Liparis reflexa* – that I had "discovered" on the sandstone rock-faces and boulders near Darling Mills Creek on the border of Northmead, Baulkham Hills and North Rocks. I arranged a swap with the grower – Jon Hestalow (primarily a hybrid *Cymbidium* grower), and a year later he gave me a small flowering sized division of this "new" orchid. It was labelled as "Liparis longipipes" and was told it came into Australia some years beforehand, with an importation of *Dendrobium* species from India.

My next problem was finding more information on this small flowered and very prolific species. As all I knew was that it was from India, it flowered in May-June, and it grew easily in a shadehouse, i.e. it didn't need a heated glasshouse in winter. I quickly established through some books that it was indeed *Liparis longipes*, and that it was described from India in 1830.



***Liparis viridiflora* (India) – plant in bloom**

I remember taking it to a Orchid SPECIES (NSW) meeting, again in the 1980s, and being told that this plant's name had been synonymised and subsequently reclassified as *Liparis viridiflora*. (*viridiflora* = green flowers). That person was Jim Cootes – well known for his work on Philippine orchid species.

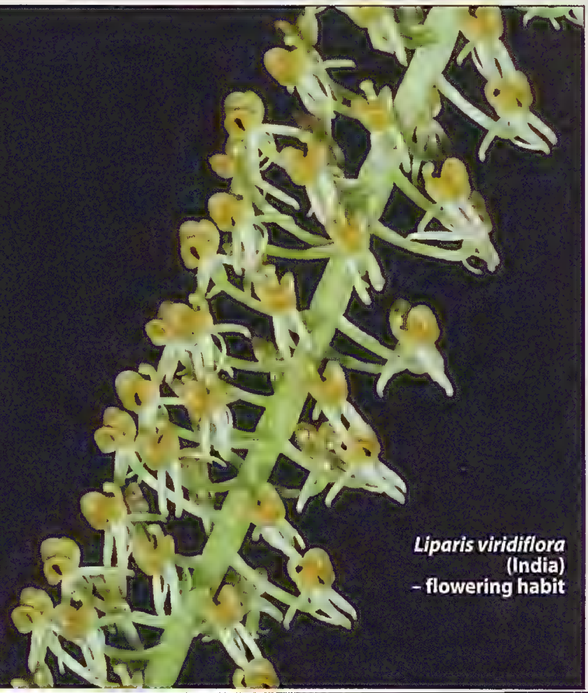
This plant has flourished over the years and I have given away and sold many dozens of plants over the past couple of decades. I am confident that the plants owned by Brian and John (and others), would be genetically identical to my original plant from Jon. Indeed, I suspect they are all divisions off the one original imported plant. It grows well as a potted specimen in an open pinebark based mix that is well drained yet moisture retentive. 50% medium grade bark, 30% small grade bark, 10% river gravel (10mm), and 10% course perlite.

Ironically, the only other example of *Liparis viridiflora* that I have seen from a known location is the plant Jim gave me a piece of, from the Philippines. There it grows primarily as a lowland tropical plant, but may also be found in the mountains at altitude. This example must have been from the lowlands, as it requires a heated glasshouse to get through winters in Sydney. The flowers are almost identical to the Indian plant, but the inflorescence is only about half to two-thirds as long and quite straight, with the blooms tightly packed. Horticulturally, it is inferior to the Indian plant.

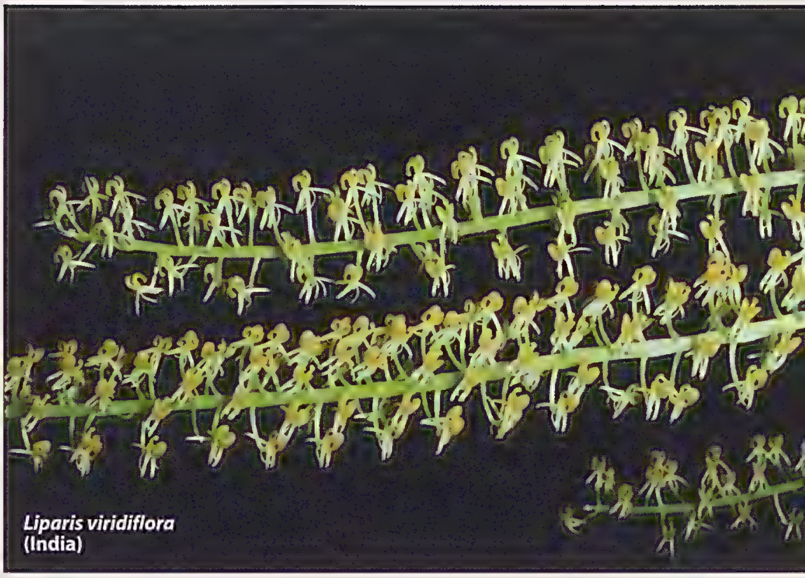
It is well established that this species has a very wide distribution. Basically from India through to Indochina, the Philippines, Sulawesi to Indonesia. There are reports on a few orchid species websites that suggest this species also occurs in New Guinea and some of the Pacific Islands (incl. Fiji) – yet there are no references given to back up this information.

There is no reference to this *Liparis* whatsoever in Schlechter's opus *The Orchidaceae of German New Guinea*. Peter O'Byrne in his 1994 *Lowland Orchids of Papua New Guinea* does not mention it either. Even the extensive www.orchidspng.com website has no mention of *Liparis viridiflora*.

There is a similar looking *Liparis* that indeed does occur in New Guinea, the Pacific Islands and was also discovered in North Queensland in the early 1980s, making it a legitimate Australian native species. That orchid is *Liparis condylobulbon*. It has very similar flowers to our Indian *Liparis viridiflora*, but differs primarily in its somewhat bottle-shaped pseudobulbs. It is a lowland tropical species that would simply die in a shadehouse in Sydney from the winter cold. It is strictly a heated glasshouse subject in temperate climates.



***Liparis viridiflora* (India) – flowering habit**



***Liparis viridiflora* (India)**

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In Australasian terms, *Liparis condylobulbon* has been recorded and confirmed from New Guinea, the Solomon Islands, Bougainville, Vanuatu, Fiji, Samoa, New Caledonia and of course, Cape York Peninsula (only on two occasions: Rocky River, McIlwraith Range and Tozers Gap, Iron Range), Queensland, Australia.

I think if you are going to bench a plant using its supposed country of origin, then you should at least have some evidence of the plants original providence.

So we go back to the heading of this note. *Liparis viridiflora* – is it an "Australasian" Species?

Based on the evidence, I say a definite "No". I believe the unverified records of *Liparis viridiflora* from countries and regions classified as Australasian have simply been misidentified specimens of the similar but distinct *Liparis condylobulbon*. So, for the purposes of ANOS Judging, *Liparis viridiflora* should not be entertained or accepted as an Australasian species.

As a footnote to conclude this discussion, John McAuley is to be heartily congratulated on both accepting this new information, and taking the initiative by contacting Kew with this for verification. They have now deleted the reference to New Guinea and Australasian regarding *Liparis viridiflora* from the Kew Checklist. This is highly commendable and exemplifies both common sense and flexibility. As an aside, John also told me that his plant has longer spikes than mine, but I think that's simply because he is a better orchid grower than me!

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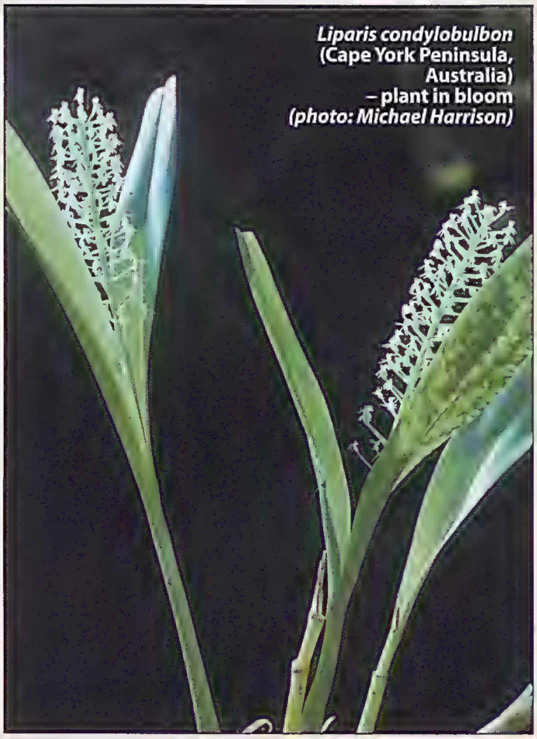
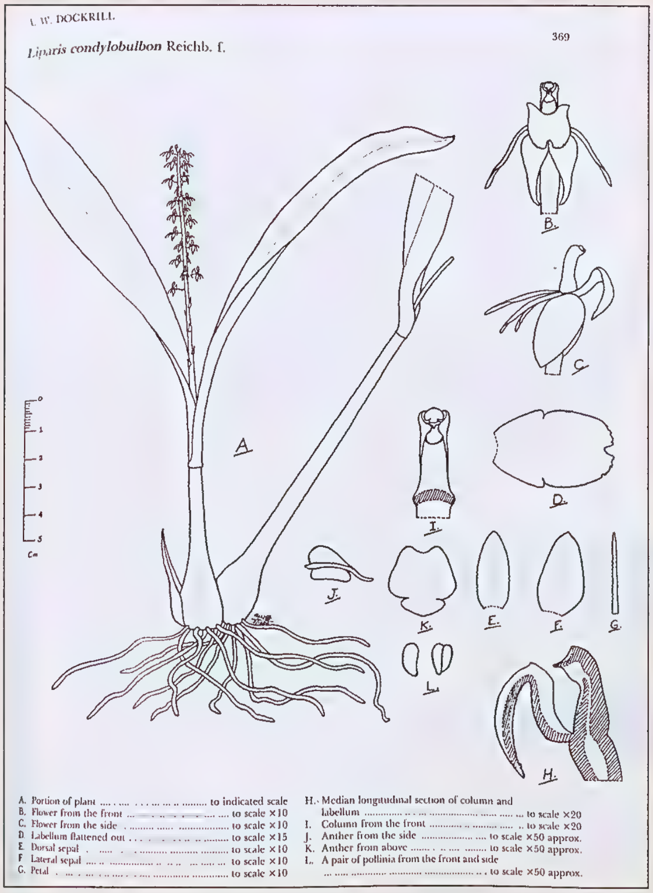


***Liparis condylobulbon* (Cape York Peninsula, Australia) – plant in bloom (photo: Michael Harrison)**



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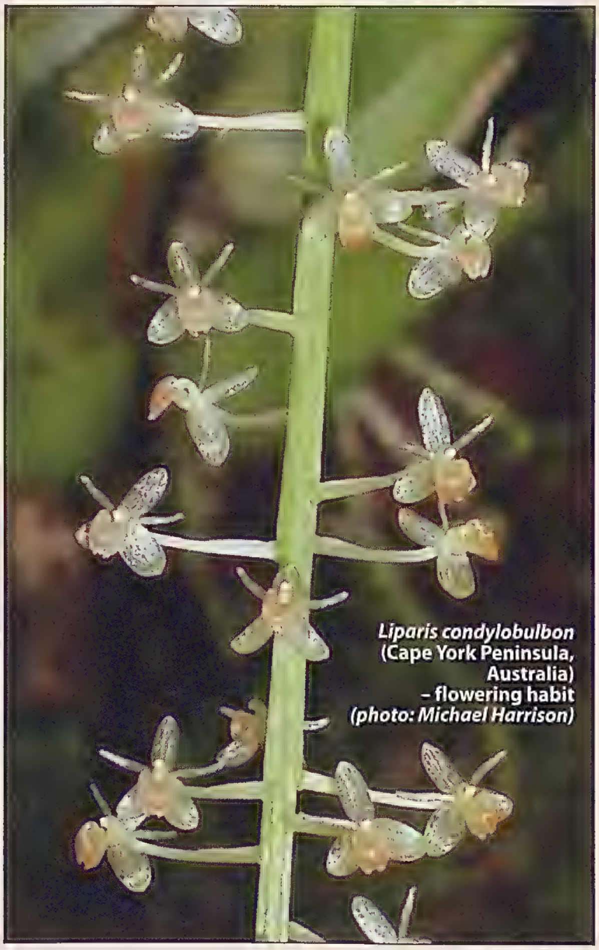
369

Liparis condylobulbon Reichb. f.

A. Portion of plant .... to indicated scale
B. Flower from the front .... to scale ×10
C. Flower from the side .... to scale ×10
D. Labellum flattened out .... to scale ×15
E. Dorsal sepal .... to scale ×10
F. Lateral sepal .... to scale ×10
G. Petal .... to scale ×10
H. Median longitudinal section of column and labellum .... to scale ×20
I. Column from the front .... to scale ×20
J. Anther from the side .... to scale ×50 approx.
K. Anther from above .... to scale ×50 approx.
L. A pair of pollinia from the front and side .... to scale ×50 approx.

Liparis condylobulbon (Cape York Peninsula, Australia)
– drawing by Alick Dockrill (from *Australian Indigenous Orchids*)



***Liparis condylobulbon* (Cape York Peninsula, Australia) – flowering habit (photo: Michael Harrison)**

Australian Orchid Foundation - Essay Competition 2018 (1st Prize Winner)

"My Greatest Orchid Disaster"

(Or my thoughts on how to avert one)

by Karen Quinn

On the 14th May 2016 my world changed forever. My dear husband, Leon, passed away after a long journey with cancer. He was a much loved son, father, father in law, brother, stepfather, nephew, cousin, friend, and importantly, orchid lover and orchid judge of many years standing in Central Queensland. In addition he was a devoted owner of a very substantial orchid collection, which I would now immediately "inherit!" Greatest orchid disaster looming! What if I killed them all?

While Leon's passion was growing and breeding orchids, my "passion" has always been arts and crafts and on occasion I would help him "repot" the baby orchids, but my knowledge of how to care for orchids generally, was sadly lacking! In his final days I asked Leon what I was going to do with all the orchids. He uttered two significant words "Phone Bob!" A few weeks later I phoned Leon's long time orchid friend, Bob with a call for help! "I feel like I'm drowning, what am I to do with all the orchids? I think I may have a potential disaster on my hands!" Thanks to Bob's help, I am now "treading water" and slowly learning how to swim, the orchid way!

The next hurdle to overcome was to have the courage to join an orchid society and expose my ignorance. We had moved south to be closer to medical care in Brisbane and I didn't know many people in the local area. I went along to the Bribie Island Orchid Society. Thankfully, they hold monthly "New Growers" meetings where orchid growing problems, repotting and "all things orchid" are discussed in layman's terms.

The society also encourages new growers to bench their orchids for judging, in a Novice capacity. Oh dear, another challenge! I self-consciously brought in my first *Cattleya* early in 2017, and what delight – earned the Judges Choice trophy! The year ended on a high note for me when I won the Merv Anderson New Growers Memorial Shield Award – for Best New Grower of the Year!

Has my potential orchid disaster been avoided? Not yet, but there are some thing that I have learnt along the way-

- Have a contingency plan! If you own a collection of orchids, talk about what to do with them should things turn "belly up." Ask questions! I now regret that I didn't ask Leon more about how he cared for the orchids. What fertiliser/s should I use? How should I deal with any virus that might appear? (One look at a book on the subject gave me sleepless nights.)
- Don't be intimidated by all the varied orchid names, classes, hybrids, mirror clones etc. I have also stuck mainly with the one type of orchid (Cattleyas) so that I can get to know as much as I can about them, before branching out to other types.
- Find an Orchid Society where you feel, welcomed, comfortable and not afraid to ask "ignorant" questions. Volunteer to help at shows so you can listen to the experts, other growers and gather snippets of information along the way. Focus on the flowers and "steer clear" of any political dynamics!
- Take notes and diarise any successes along the way to encourage yourself! Read Australian orchid publications. OK most of it is "Greek to me" but there are the Cultural Notes with advice on growing orchids in different growing areas and conditions, which are very useful.
- Be prepared to become a sleuth of sorts! Over several days I noticed something was eating my orchid leaves. These were not small holes, but were large bites around the edges of the leaves. Evidence of something with very effective mandibles! Possums? Mice? Bugs? It was suggested that I patrol the greenhouse with a torch at night, and also to watch when the orchids were watered as an insect would "take flight." No success. A few weeks later – a clue! My neighbour had large locust looking grasshoppers eating her bromeliads. Sure enough further extensive examinations revealed the well camouflaged culprits. Another potential disaster narrowly averted!

I have learnt that apart from becoming "addictive", successful orchid growing can be very time consuming – there is always something that needs to be done. Repotting, weeding, and washing pots, spraying, a watering regime to perfect, pests and diseases to deal with and different views on sterilising tools. But, the rewards are endless, too. The excitement when a magnificent flower opens or another earns recognition at a meeting boosts one along.

I also feel closer to my dear husband when working with his precious orchids. I am carrying on his tradition. I am doing my level best to avoid an "orchid disaster" on my watch! ■

Karen Quinn
Ningi, Queensland

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Australian Orchid Foundation - Essay Competition 2018 (2nd Prize Winner)

"My Greatest Orchid Disaster... so far"

by Julie Copley-Bishop

There will probably be a mass eye-roll when I tell my sad tale of how I overreached my orchid growing ability and knowledge. Peat. Yes. Peat. I thought its use as the higher ratio of my main growing medium would be a good idea as I had read that a fine mix of bark, perlite and peat moss was a suitable growing medium for miniature epiphytes. In hindsight wider reading of the literature on the uses of peat moss as well as its ratio to perlite would have saved me grief. Fortunately I also had miniature orchids that were safe from this new regime being bare rooted or mounted on cork so out of the danger zone. But I still had potted *Bulbophyllum*, a few *Cattleya* and was slowly building a collection of *Promenaea, Restrepia* (so unkind to say that their flowers look like cockroaches), *Pleurothallis* and *Zootropion*.

I live in a senior's unit that has a small front veranda where I hang bare rooted Vandas from the roof guttering and an equally small back courtyard surrounded by six foot paling fences which are light and air flow inhibiting. I site my bush house on what was a garden bed as the rest of the yard is concreted. The floor of the house is covered with a layer of drainage gravel that is easy for me to water and aids humidity. My bush house's most recent incarnation, as previous ones have rusted away, is two Harvest House X–up plant stands facing each other over a metre apart. They are joined together at their highest point by salvaged metal rods. The whole structure is covered by 70% shade cloth and secured by cable ties. The stands come flat packed and need neither strength nor an engineering degree to assemble. It is just a matter of lifting up out of the box, clipping shelves into place and dropping the roof frame on - easy. This gives me ready access to two shelves either side at a reasonable height - the bottom ones not so much. While not aesthetically pleasing it suits its purpose of not being in any way a permanent structure.

I grow my orchid collection within the natural conditions that I have without relying on creating an artificially heated or cooled environment. I use town water and hand water although a good misting hose attachment eludes me. Despite the occasional passing grass hopper or other bud and leaf munchers I leave the door open for part of the day to enable any breezes that are present to pass through as the house is flush to the dividing fence. Being not totally bug proof around the open base of the structure also aids air flow. The rear shelves which home the *Restrepia, Pleurothallis, Promenaea* and *Zootropion* potted in small terracotta pots have an extra layer of white 50% shade cloth. At this point in time this extra layer appears to be working well. Light intensity is variable in this location during different times of the day and the seasons. Several visits a day are important as I think the smaller orchids require more frequent attention. I initially had and probably still have too wide a variety of genera to learn about and care for.

In my collection I no longer have any orchids such as *Coelogyne, Lycaste* or the way too big *Bifrenaria* and *Cymbidium* (the remaining unflowered ones exiled to the front garden). These shy bloomers were the mainstays of my collection for a number of years. A practical necessity for me is to regularly cull my collection. I am always happy to find new homes through friends and family of orchids that have grown lushly, no longer fit the focus of my collection or gobble up bench space. Over the past few years I am tending more to buy or order on-line for pick-up which allows time to research and rethink. Purchasing mistakes are made through impulse buying. Past experience informs (if I listen) as to what species I can successfully grow and flower.

I digress. I initially noticed that a number of the potted smaller *Bulbophyllum* and smaller *Cattleya* were not thriving so I took one then another out of their pots to see what was going on. What I found was their roots were dying and that the bottom half of the potting mixture had become the consistency of slurry. Perhaps I had over watered? In some instances the tops of the media were quite solid to the touch. I use and prefer (most of the time) terracotta pots. I do crock the pots with pieces of styrene foam. While not my preferred option the bags of foam are light weight to carry.

On reflection I had used propagation grade perlite (really tiny) in combination with small size bark (OK) and propagation peat moss (not OK). The peat moss overtime apparently turns the media acidic due to its natural decomposing nature. The bag that it comes in from a popular hardware chain (on a much later reading of its information panel) states that it is ideal for acid loving plants such as azaleas and camellias. The bag does not say where the peat moss comes from only that "it is carefully extracted from designated areas according to strict ecological cultivation standards." This is a whole other issue widely covered in the research literature but it is now an incentive for me not to use it on ecological grounds.

For the mix I have since read that it is to be a ratio of 7 coarse perlite to 1 peat moss. As I was unsure at that point what proportion of peat moss I had used due to poor record keeping I did a massive repot and a substantial binning. I started the repotting with the miniatures that in the main are fine and shallow rooted and like to be snug in their pots. Their roots rot readily so require good drainage. Opps.

I threw the remaining bags of peat moss and the propagation perlite out onto the front communal garden after reading in the US and Canadian literature that the peat moss is mined or harvested from peat bogs that do not regenerate, destroy the organisms that live there and release carbon dioxide into the air when the bogs are drained. The alternate argument presented is that the peat moss is vacuumed in very thin layers from the surface of the bog and is only a small percentage of peat reserves. Apparently Britain is planning to phase out peat moss for hobby farmers by 2020 and commercially by 2030. Complex arguments are offered in the research literature for both sides of the debate.

While my experience of using propagation peat moss and propagation perlite as the mainstays of my potting media may not be seen by some as a shock/horror tale it was for me. I derive significant pleasure from my hobby of orchid growing through watching seedlings grow to flowering size and hopefully to place on the show bench. In their care the more the better philosophy did not work for me. The lesson I learnt is to critically check the information labelling of bagged products as well as keeping up with the current research on all aspects of orchid care. ■

Julie Copley-Bishop
Logan, Queensland

"My Greatest Orchid Disaster"

by Sandra Rowcliffe

The catalyst to my interest in orchids developed from the day a Raffle Prize was delivered to my family home. I had just turned 14 years of age and my mother was fortunate to win the major prize at the Gladstone Orchid & Foliage Society Easter Show. The prize consisted of a large box of beautifully decorated candy Easter eggs and marshmallow rabbits and an exquisite flowering *Cattleya* Orchid, which was mauve in colour with a deeper coloured labellum and a strong fragrance, the name is unknown to me.

This prize also ignited another interest and that was I learnt cake decorating around 17 years of age. I commenced a full time cake decorating business which also included equipment sales and tutoring private classes and Home Economic Students at a local high school. After my first son was born this business allowed me to work from home while my children were small and I did this for ten years. I also established the Gladstone Cake Decorators Association in the mid-80s. To this day I still make candy Easter eggs to sell at the markets, to individuals and for club raffles; I also bake and ice cakes especially around Christmas Time.

When I first married and had my own home and a small greenhouse, every Easter I was one of the first visitors to the Orchid Show buying several plants each time, but sadly a majority did not survive to the following Easter. The main reason was that the greenhouse was built under a wide veranda with an eastern aspect and was sheeted with very thick fibreglass sheeting (the sheeting we got for free) which meant the plants were trying to survive in a low light situation with very poor airflow contributing to a range of diseases affecting my plants.

When I relocated to Rockhampton in 1996 I brought my surviving 30 orchid plants with me mainly Cattleyas and Dendrobiums. Those plants relocated to three different addresses until my husband and I purchased a squash centre in February 2005, and Michael built me three small green houses to house my collection which now covered several genera – *Cattleya*, *Phalaenopsis*, *Dendrobium*, *Vanda* and *Oncidium*. They were growing reasonably well but again I experienced problems due to cramped conditions and the lack of good air circulation causing many problems with diseases as well as the usual pests - Dendrobium Beetles, Cockroaches, Mice and Rats.

We owned the centre for nine years and during that time my collection grew but still there was a high amount of mortality in my orchids. Around 2010 friends urged me to join the Rockhampton Orchid Society Inc., with the prospect I would hopefully learn how to keep my orchids healthy and most essential alive.

I looked forward to the monthly New Growers Meetings and listened intently to how I could successfully care for my plants, one of the issues I was experiencing with my *Phalaenopsis* was rot and it was suggested I used a liquid copper fungicide which was ideal for treating fungal diseases. Well!!! - when I noticed some of my Hard Cane Dendrobiums developing spots on their leaves they also got a good spray of the fungicide but sadly the results were disastrous with the plants aborting all of their leaves and I even lost a few plants. But that was not my biggest orchid disaster and I must admit I have made several disasters over the years as would most growers attest to.

One of those disasters happened when I re-potted my Oncidiums, my collection consisted about twenty plants, I planted them in a coarse orchid mix and due to our high temperatures and dry conditions I lost most of my plants, since then I have changed the medium to a mixture of 40/60 (peat mix), coconut husk and perlite and now have a very healthy *Oncidium* collection, with around 100 plants.

The next disaster occurred when I started repotting my Cattleyas, someone suggested I remove about a third of the roots, but!!! - I cut them off horizontally taking the bottom third of the length of the roots, hence lots of plants died. I have since learnt how to correctly tidy up the roots and repot but it was a stupid error that still bothers me as I lost many beautiful plants. As a beginner I discovered it was imperative to ask questions but also to ask for clarification of the answers to ensure that you understand the instructions correctly. This in itself is awkward to most beginners as they don't always have the confidence to ask questions of the more experienced growers, but I found all were extremely willing to share their expertise.

After we sold the centre in February 2014 we bought a lovely home at Olive Estate, which is a rural estate about ten minutes north of Rockhampton. We have a nice size acre block which allowed me room for some large orchid houses and Michael built me four. The area where the orchid houses are situated experiences good winds meaning great air circulation in the greenhouses and they get full sun all day.

The largest is 8m x 8m and is sheeted with frosted white polycarbonate roofing and the majority of my collection lives there – *Cattleya*, Hard Cane *Dendrobium*, *Grammatophyllum*, *Catesetum*, *Paphiopedilum*, *Phragmipedium*, *Phalaenopsis*, *Coelogyne*, *Bulbophyllum*, *Cymbidium* and *Stanhopea*.

Another orchid house 12.5m x 3.6m sheeted in shadecloth houses my Vanda, Rhynchostylis, and *Oncidium* as well as my large collection of tassel ferns. A third 7m x 6m houses my soft-cane Dendrobiums and other types of market sale plants and my advanced soft-canes hang outside under a mesh roof.

Probably the "biggest mistake" occurred just after we moved. I started repotting my 250 plants which then become 650 plants quickly and stupidly I kept them all to fill my bare greenhouse shelves, now my greenhouses are overflowing with multiple pots of the same plants. As consequence of this overcrowding it is a necessity when I repot that I keep one plant and the rest go into my sale plant greenhouse which I then sell at Shows or Markets.

My collection has now grown to over 1300 catalogued plants and nowadays I am buying plants for quality rather than quantity unlike when I first started like most of us do when the initial "Orchid Bug" bites and we are impatient to fill our greenhouses with anything and everything.

In the six years I have been a member of the Rockhampton Orchid Society I have been elevated from Novice to Advanced grower and I am currently in training to be an Orchid Judge. I still have the occasional pest or disease appear but now days I am more observant of these and treat my collection quickly to alleviate problems escalating. Even though I still have the occasional orchid death it is minimal compared to all the orchids I have sent previously to Orchid Heaven.

Being an Orchid Grower is both frustrating and satisfying, probably the biggest frustration is when plants flower prior to or just after shows, it is definitely a matter of luck having that special orchid flowering at its best in time for the shows and a chance of a prize. I find the most frustrating of all is no doubt Catasetums which only have about a weeks' flowering life, but they are also my favourite genus.

Sandra Rowcliffe
Rockhampton, Queensland

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2nd Prize	$250.00
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The Foundation invites all Australian orchid growers to consider the topic for 2019 and submit an entry. We would like to hear about your ideas and experiences and benefit from them.

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The deadline for receipt of all entries is June 30th 2019

Send your entry
electronically to: aof@australianorchidfoundation.org.au
or to: AOF Essay Prize P.O. Box 440, Yarra Glen Vic. 3775
Please include your name, address and telephone contact.

Entry Rules:

- This competition is open to Australian residents only
- The essay will be an original article, not previously published
- The essay must be no more than 4,000 words, short essays are most welcome
- The essay is to be in English and typewritten
- Entries may include art work or images
- The authors of the essays will remain undisclosed to the judges, whose decision will be final. If in the opinion of the judges, no worthy essays are received, there will be no award that year
- Non-winning entries will be returned to the sender if requested. These entries may be submitted to the editors of Australian orchid periodicals for publication, with permission from the author
- The winning essay will be announced at the AGM of the Foundation in October 2019
- The winning entries will be placed on the AOF website and maybe published in Australian orchid periodicals

New species in the *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. complex (Orchidaceae) from Western Australia - 7

by David L. Jones and Christopher J. French

Abstract

Diplodium actites, Diplodium brevisepalum, Diplodium grossum, Diplodium polyphyllum and *Diplodium tylosum* are described here as new. Notes are included on their recognition, distribution, ecology and conservation status. Distinguishing features of each species are compared with allied taxa.

Key Words

Orchidaceae, *Diplodium actites, Diplodium brevisepalum, Diplodium polyphyllum, Diplodium tylosum, Diplodium nanum*, new species, Western Australia, Australian flora.

Introduction

Ongoing studies into the *Diplodium nana* R.Br. complex in Western Australia have revealed numerous undescribed species. Some of these species are common, widespread and well conserved while others are known from only one or two locations and are possibly quite rare and may be under threat. It is extremely important that these taxa are formally recognised to allow appropriate conservation measures to be enacted.

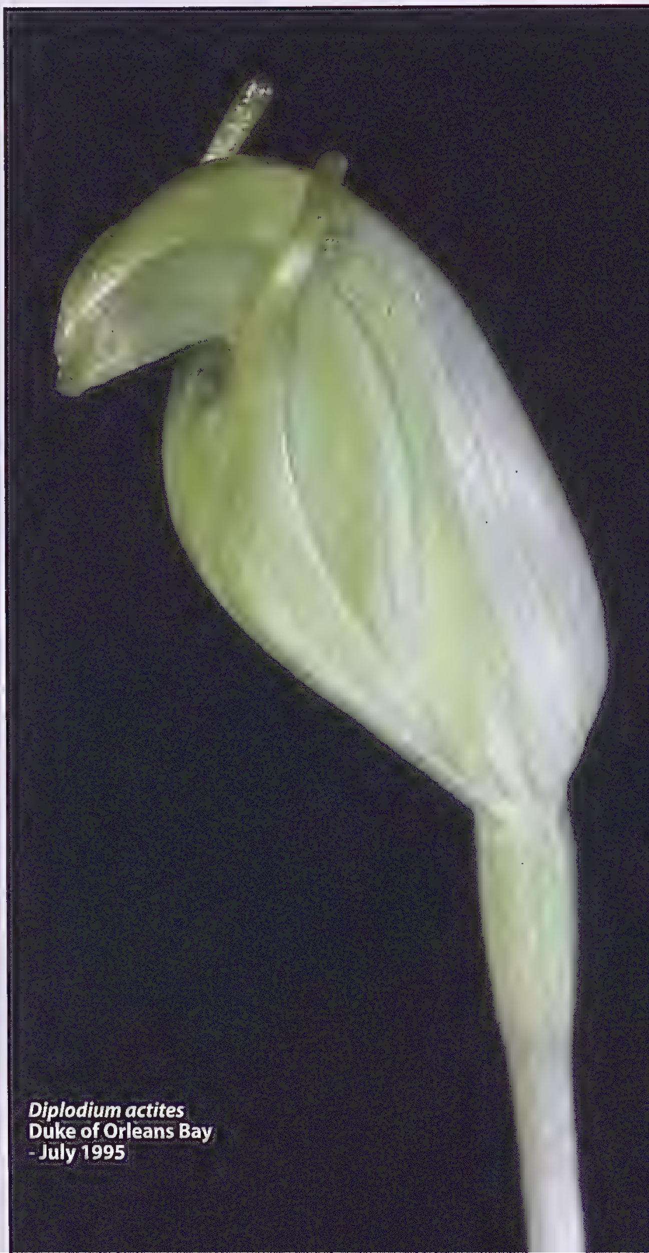
Five species are described as new in this, the seventh paper of the series. 21 new species in Western Australia have been previously described (Jones & French 1&2 (2014), 3 (2014), 4 (2015), 5 (2017), 6 (2019)).

Materials and Methods

Descriptions of the new taxa were made from fresh specimens. Unless otherwise indicated, all types of *Pterostylis* and *Diplodium* relevant to this study (or photographs thereof), and collections cited, have been seen by us.

Taxonomy

1. *Diplodium actites* D.L.Jones & C.J.French, ***sp. nov.*** affinis *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. but shorter growing (30-100 mm *cf.* 50-150 mm for *D. nanum*), the flower with a bloated appearance, with shorter free points (3-5 mm long *cf.* 10-15 mm for *D. nanum*) that are uniformly thickened and reflexed back from the galea (filiform and erect for *D. nanum*); also with *Diplodium ectyphum* D.L.Jones & C.J.French, but shorter growing (30-100 mm *cf.* 80-240 mm for *D. ectyphum*), with shorter free points (3-5 mm long *cf.* 6-12 mm for *D. ectyphum*) which are evenly thickened and reflexed (linear clavate and erect to weakly reflexed for *D. ectyphum*) and fewer, smaller stem leaves (3-4, 3.5-19 mm long, 3-8 mm wide *cf.* 3-16, 12-27 mm long, 6-15 mm wide for *D. ectyphum*).

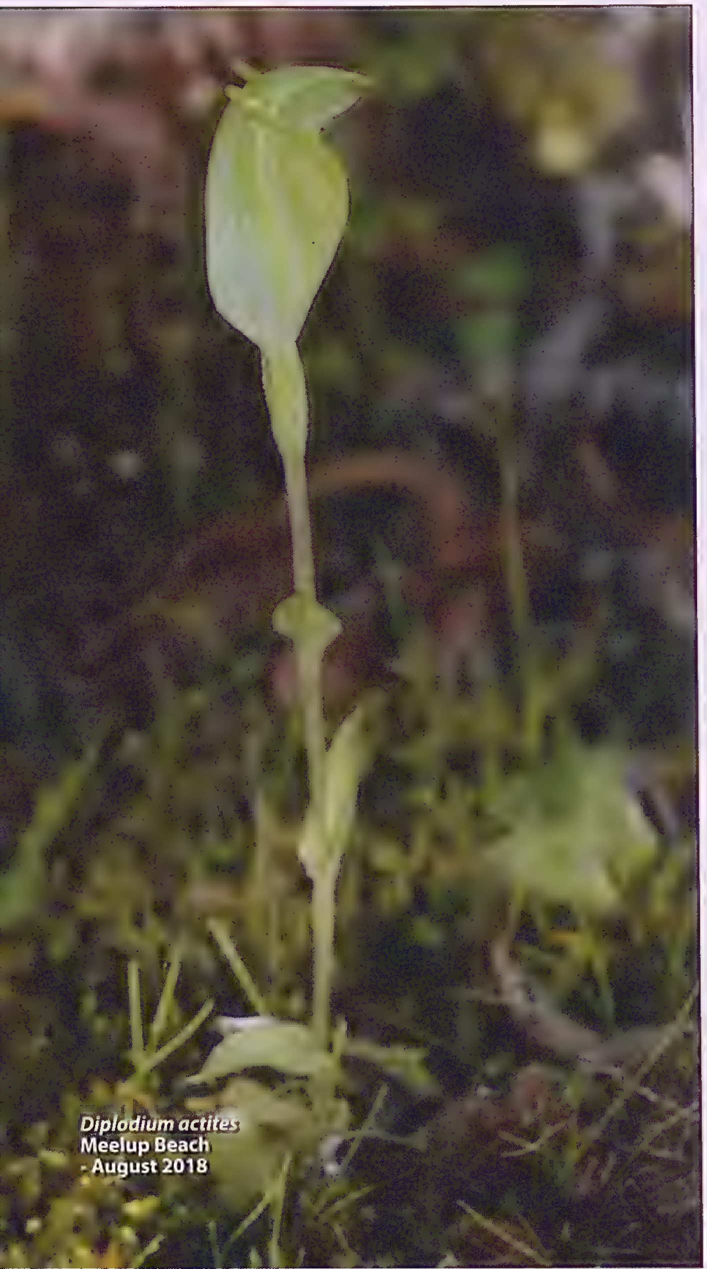


Diplodium actites
Duke of Orleans Bay
- July 1995

TYPE: **Western Australia**. Darling District. Conspicuous Cliffs, 24 Sept. 2000, *C.J.French 2542* (holo CANB 624648).

Illustrations: Page 353, Hoffmann & Brown, second edition (1998) – as *Pterostylis aff. nana* - "Short-eared Snail Orchid"; Page 357, Brown, Dixon, French & Brockman (2013) – as *Pterostylis* sp 'coastal clubbed sepals' - "Coastal short-eared snail orchid".

Description: *Rosette* basal; leaves 4-7 in a loose rosette; lamina ovate, 5-17 mm long, 4-10 mm wide, green, paler beneath, margins entire, apex acute to subacute; petioles 2.5-7 mm long. *Scape* 3-10 cm long, smooth. *Stem leaves* spreading, 3-4, ovate to ovate-lanceolate, 3.5-19 mm long, 3-8 mm wide. *Ovary* 3-5 mm long, dark green, smooth. *Flower* solitary, 10-15 mm long, 4-6 mm across, translucent white with green stripes and markings, coalescent in the distal half. *Galea* gibbous at the base then erect, curving forwards in the distal third; apex flat to shallowly decurved; dorsal sepal about as long as the petals. *Dorsal sepal* ovate-lanceolate, 15-20 mm long, 7-9 mm wide, inflated at the base then uniformly tapered, striped in the proximal half, stripes coalescent in the distal third; apex acute to acuminate. *Lateral sepals* erect, tightly embracing the galea; sinus shallowly curved in side view, incurved suddenly near the top; flat and shallowly notched in front view, flanked by a conspicuous area of darker green tissue; central lobe folded internally; conjoined part 7-11 mm long, 4-5 mm wide, narrowed to c. 2.5 mm across at the base, the upper margins tapered suddenly into the free points; free points evenly thickened, 3-5 mm long, smooth, reflexed, sometimes hardly extending above the hood. *Petals* obliquely oblong, 10-12 mm long, 2.5-3.5 mm wide, strongly falcate, dilated near the apex, green with a narrow white central stripe, distal third darker; anterior margin smooth; flange deltate, c. 1-2 mm across, obtuse. *Labellum* erect, weakly curved forwards near the apex, white with green stripes in the proximal half, green in the distal half. *Labellum lamina* elliptical-oblong to oblong, c. 3.5-4.5 mm long, 2 mm wide; lateral and basal margins glabrous; apex broadly obtuse. *Callus* c. 0.3 mm across, ridged, expanding to c. 0.5 mm across near the apex; basal appendage deflexed, linear-oblong, c. 2 mm long, apex shortly lobed, sparsely ciliate, curved upwards. *Column* 7.5-8.5 mm long, angled away from the ovary at about 45° at the base then obliquely erect, green. *Column wings* c. 2.6 mm long; basal lobe c. 1 mm long, at an angle of c. 70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 1.2 mm long, green; apical lobe clavate, c. 1 mm long. *Anther* c. 1 mm long, obtuse. *Pollinia* linear, c. 1 mm long, falcate, mealy, yellow. *Stigma* central, elliptical, c. 2.5 mm long, c. 1.2 mm wide, raised. *Capsule* not seen.


Diplodium actites
Meelup Beach
- August 2018

Distribution and ecology: Endemic in south-western WA. Found in near coastal areas (often within metres of the beach) from south of Perth to Israelite Bay growing on stabilised coastal dunes, in sand in dense, low coastal heath, and peppermint woodlands. Flowering late July to mid-September.

Recognition: Characterised by near coastal distribution, very short stature, 3-4 well-developed stem leaves, relatively large bloated flower, very short, uniformly thick, swept back free points and an elliptical-oblong to oblong labellum with smooth margins and broadly obtuse apex.

Similar species: This species has affinities with *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. which has a thinner, mostly smooth scape, much narrower stem leaves appressed to the stem, larger, narrower green and white flowers and a larger elliptical-oblong labellum with shortly ciliate margins. It has commonly been grouped with another undescribed, short sepaled taxon (*Diplodium brevisepalum* D.L.Jones & C.J.French – described below) which grows in a slightly more inland narrow strip from Perth to Yanchep, is taller with up to 6 stem leaves and has longer sepals which are thickened, erect and squared-off at the apex. The new species also has affinities with *Diplodium ectyphum* D.L.Jones & C.J.French which is taller with more numerous, larger stem leaves and larger flowers having longer thicker sepal free points. Despite their overlapping distribution, these two species are not known to occur together.

Notes: In the eastern part of its range, *Diplodium actites* overlaps both *Diplodium voigtii* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem. which can be distinguished by its much smaller, dull green to bluish green rosette leaves and *Diplodium meridionalis* D.L.Jones & C.J.French which has much longer thickened lateral sepal free points. The latter two taxa are generally confined to coastal granite headlands in that area and are not known to grow together with *Diplodium actites*.

Conservation Status: Common within its range and conserved in National Parks and nature reserves.

Etymology: *actites* from Greek *aktites*, shore-dweller, this orchid grows close to the sea.

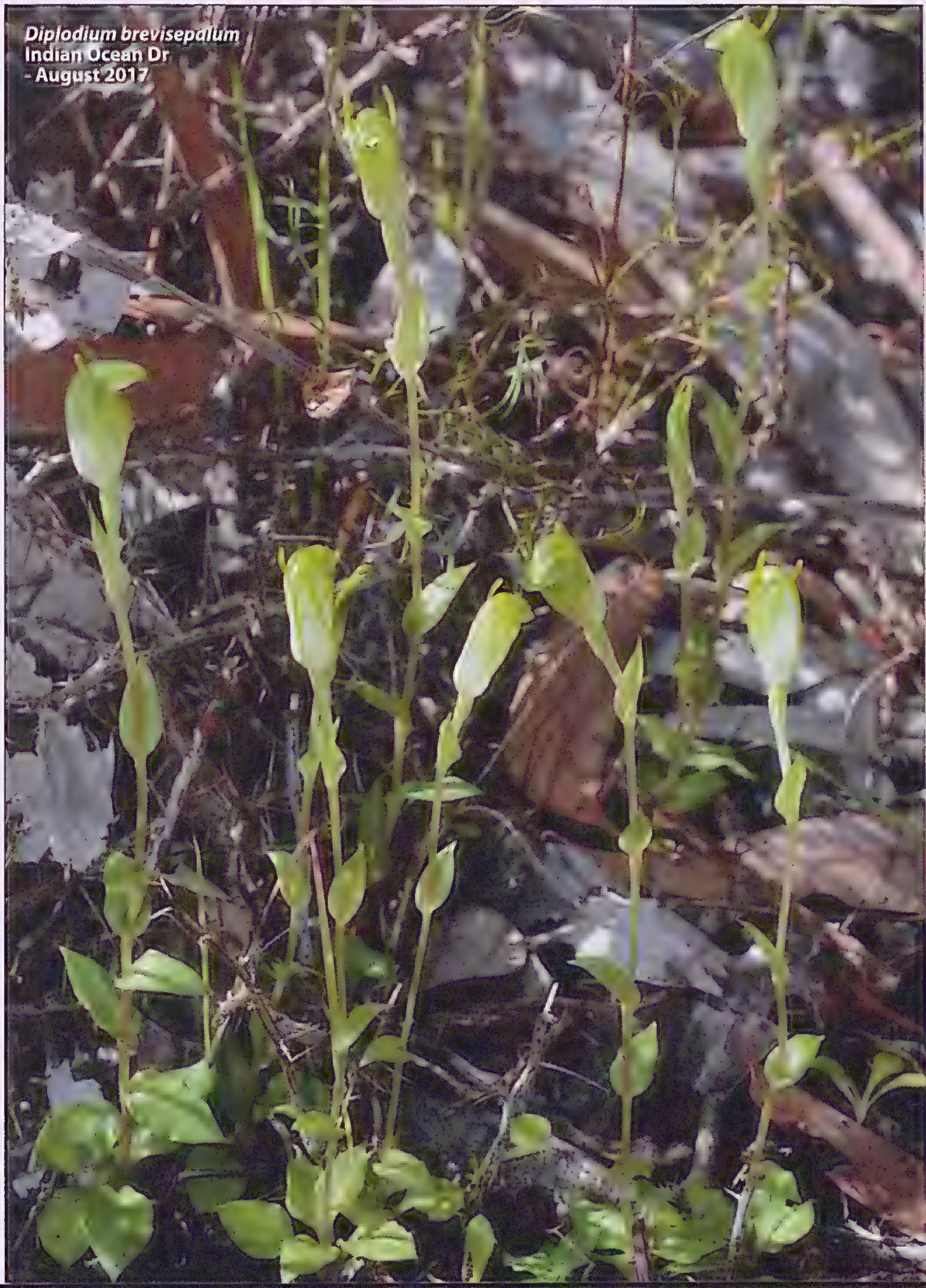
Other specimens: WESTERN AUSTRALIA, Eyre District: Duke of Orleans Bay, E of carpark, 21 Aug. 1997, *G.Brockman (GBB 255)* (PERTH 05763029); Table Hill, Hopetoun, 31 Jul. 1998, *H.Taylor 69* (PERTH 05145422); Darling District: 650 m N of William Bay carpark, 16 Aug. 1997, *G.Brockman (GBB 219)* (PERTH 05760046); Warren Beach Road, 5.1 km from coast, D'Entreacasteaux National Park (Plot: wb6), 28 Oct. 1990, *N.Gibson & M.Lyons* 12145 (PERTH 03050238).

2. *Diplodium brevisepalum* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. but differing by its taller habit (70-200 mm *cf.* 50-150 mm for *D. nanum*), 4-6 spreading stem leaves (1 or 2 sheathing stem leaves for *D. nanum*), short thick free points on the lateral sepals (6-10 mm long *cf.* 10-15 mm long, filiform for *D. nanum,*) weakly reflexed above the galea and glabrous labellum margins (sparsely hairy in *D. nanum*); also with *Diplodium ectyphum* D.L.Jones & C.J.French, but is generally shorter growing (70-200 mm tall *cf.* 80-240 mm tall for *D. ectyphum*), with fewer smaller rosette leaves (4-6 leaves, 10-16 mm long by 5-10 mm wide *cf.* 5-8 leaves, 12-27 mm long by 10-16 mm wide for *D. ectyphum*), weakly reflexed, squared off lateral sepal free points (linear clavate and erect to weakly reflexed for *D. ectyphum*) and fewer smaller stem leaves (4-6, 8-17 mm long, 4-6 mm wide *cf.* 3-16, 12-27 mm long, 6-15 mm wide for *D. ectyphum*).

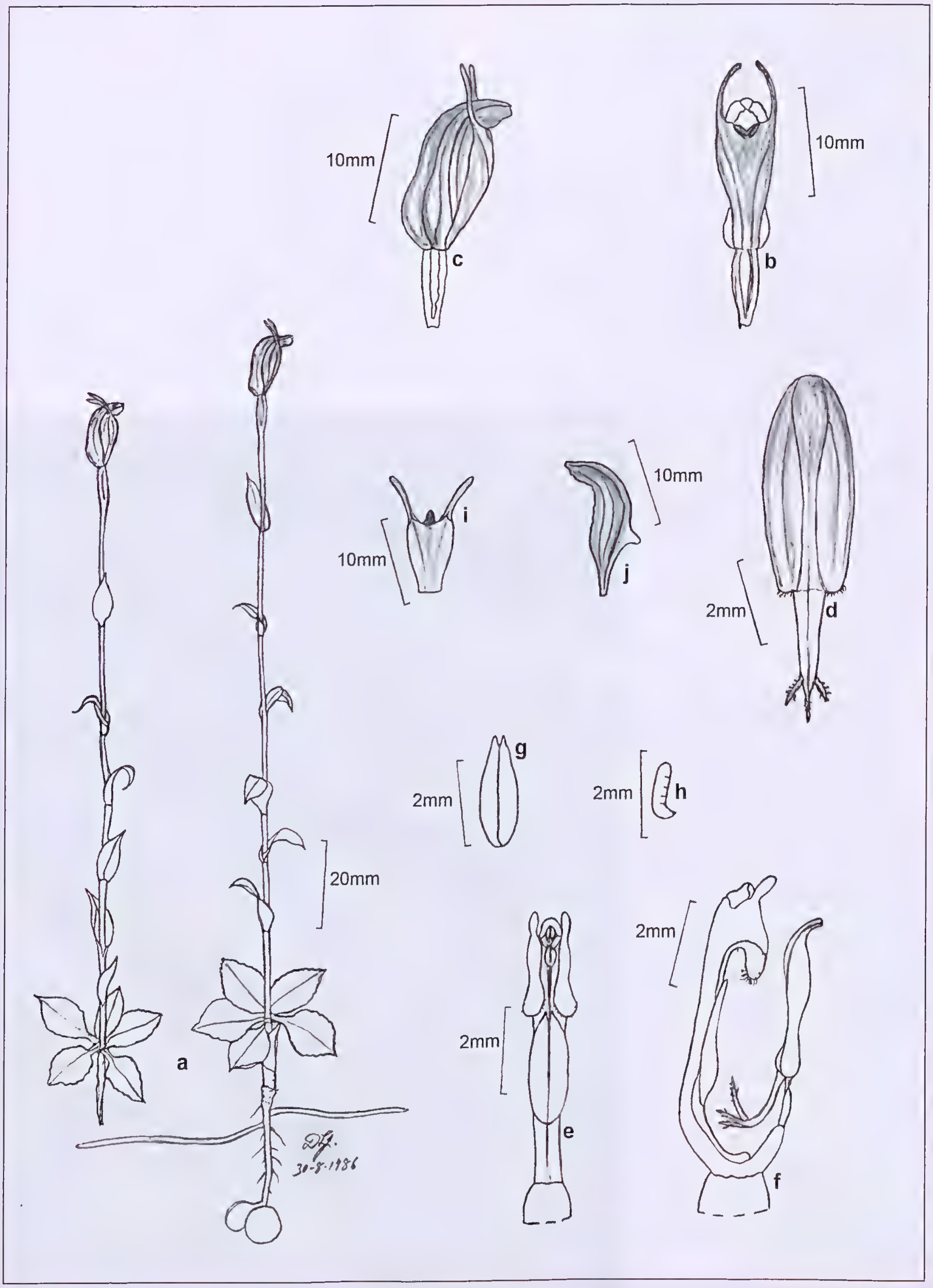
TYPE: Western Australia. Darling District. Wanneroo Road, 4.7 kilometres north of Military Road, 4 September 2004, *C.J.French 5799*, (holo CANB653947).

Illustrations: Page 353, Hoffmann & Brown, second edition (1998) – as *Pterostylis aff. nana* – "Short-eared Snail Orchid"; Page 416, Hoffmann & Brown, third edition (2011) – as *Pterostylis* sp. 'short sepals" - "Short-eared Snail Orchid"; Page 366, Brown, Dixon, French & Brockman (2013) – as *Pterostylis* sp. "short sepals" - "Short-eared Snail Orchid".

Description: *Rosette* basal; leaves 4-6 in a loose rosette; lamina ovate to elliptical, 10-16 mm long, 5-10 mm wide, dull green, paler beneath, subacute to acute, margins finely undulate; petioles 2-7 mm long, narrowly winged. *Scape* 7-20 cm long, slender, glabrous. *Stem leaves* spreading, 4-6, ovate to ovate-lanceolate, 8-17 mm long, 4-6 mm wide, margins entire or irregular. *Ovary* 4-6 mm long, dark green, glabrous. *Flower* solitary, 13-15 mm long, 5-6 mm across, translucent white with pale green stripes and markings, coalescent in the distal half. *Galea* gibbous at the base then erect, curving forwards in the distal third; apex shallowly decurved; dorsal sepal about as long as the petals. *Dorsal sepal* ovate-lanceolate, 16-18 mm long, 6-7 mm wide, inflated at the base then tapered, striped in the proximal half, stripes coalescent in the distal half; apex subacute. *Lateral sepals* erect, tightly embracing the galea; sinus gently curved in side view, curved inwards near the top; shallowly notched in front view, flanked by an area of darker green tissue; central lobe folded internally, c. 1.3 mm long, dark green; conjoined part 7-9 mm long, 4.5-6 mm wide, narrowed to c. 2.5 mm across at the base, the upper margins tapered suddenly into the free points; free points weakly reflexed, linear, thickish, 6-10 mm long, smooth. *Petals* obliquely oblong, 12-15 mm long, 4-4.5 mm wide,



Diplodium brevisepalum
Indian Ocean Dr
- August 2017



Diplodium brevisepalum
a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. synsepalum; j. petal.
© D.L.Jones, drawn 30 August 1986.

strongly falcate, narrowed towards the apex, green with a narrow white central stripe, distal third darker; anterior margin not flared, smooth or weakly crinkled; flange narrowly deltate, c. 2 mm across, obtuse. *Labellum* erect, curved forwards near the apex, white with green stripes in the proximal half, green to brownish in the distal half. *Labellum lamina* oblong-elliptic, c. 5 mm long, 2 mm wide; lateral margins glabrous, basal margins with a few short cilia; apex obtuse. *Callus* c. 0.4 mm across, ridged, expanding to c. 0.7 mm across near the apex; basal appendage deflexed, tapered, c. 2.5 mm long, apex curved upwards, trilobed, sparsely ciliate. *Column* 7-8 mm long, angled away from the ovary at about 45° at the base then obliquely erect, green. *Column wings* c. 2.5 mm long; basal lobe c. 0.8 mm long, at an angle of c. 70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 1.2 mm long, green; apical lobe oblong, c. 1 mm long. *Anther* c. 1 mm long, obtuse. *Pollinia* linear, c. 1 mm long, falcate, mealy, yellow. *Stigma* central, elliptical, c. 2.5 mm long, c. 1 mm wide, raised. *Capsule* not seen.

Distribution and ecology: Endemic to south-western WA from Perth to Lancelin in near coastal areas growing in sand in *Banksia* woodlands and margins of swamps. North of Perth it has colonised exotic pine plantations. Flowering late July to early September.

Recognition: Relatively tall, slender species with a loose basal rosette of leaves, 4-6 well-developed spreading stem leaves, lateral sepals with short thick squared-off free points weakly reflexed above the galea and an oblong-elliptic labellum with glabrous margins.

Similar species: *Diplodium actites* (described above) is of shorter stature and has smaller flowers with very short, prominently clubbed, swept back lateral sepals (uniformly thick with squared-off tips for *Diplodium brevisepalum*), occurs much closer to the coast and has a more southerly range. *Diplodium ectyphum* has a small distribution overlap but has larger, more numerous, glossy, fleshier rosette leaves (5-8 leaves, 12-27 mm long by 10-16 mm wide), taller scape (8-24 cm tall), larger flower (14-18 mm long) and ciliate labellum lateral margins.

Notes: There is some distribution overlap between this new species and both *Diplodium platypetalum* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem. and *Diplodium glebosum* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem.. The former species is distinguished by its broadly flared petals, longer thicker lateral sepal free points and hairy stem, while the latter has a larger fleshy basal rosette, clubbed lateral sepals and grows in much wetter areas.

Conservation Status: Common within its range and conserved.

Etymology: The Latin *brevi*, short, abbreviated and *-sepalum*, sepal, referring to the short free points on the lateral sepals.

Other specimens: WESTERN AUSTRALIA, Darling District: Gnangara pine forest, 15 Jul. 1997, *G.Brockman (GBB 159)* (PERTH 05759722); Gnangara Road pine plantation N of Beechboro Road junction, 29 Jul. 1997, *G.Brockman (GBB 161)* (PERTH 05760097); east end Saunders Street, Henley Brook, 26 Aug. 1997, *M.Edgecombe 123* (PERTH 05890020); Bindoon-Moora Rd, 250 m north of Mogumber-Moore River bridge, 28 Aug. 2005, *C.J.French (CJF 6238)* (CANB 670157);); Ridges MPA (M4) 500 m N of Bailey Rd, 1.5 km east of Wanneroo Rd (Yan-12), 8 Aug. 1993, *B.J.Keighery & G.J.Keighery 62* (PERTH 04520599); north of Gnangara Road, NE corner of Lot 46 Maralla Road, locality of Ellenbrook, 20 Aug 1999, *M.E.Trudgen & M.Trudgen (MET 20193)* (PERTH 06498981); Site ML32, N of Gnangara Road, E side (towards middle) of Lot 47 Lexia Avenue, locality of Ellenbrook, 21 Aug. 1999, *M.E.Trudgen & M.Trudgen (MET 20192)* (PERTH 06528716); Site ML38, N of Gnangara Road, W side of Lot 47 Lexia Avenue, locality of Ellenbrook, 4 Sept. 1999, *M.E.Trudgen & R.Archer (MET 20191)* (PERTH 06529674).

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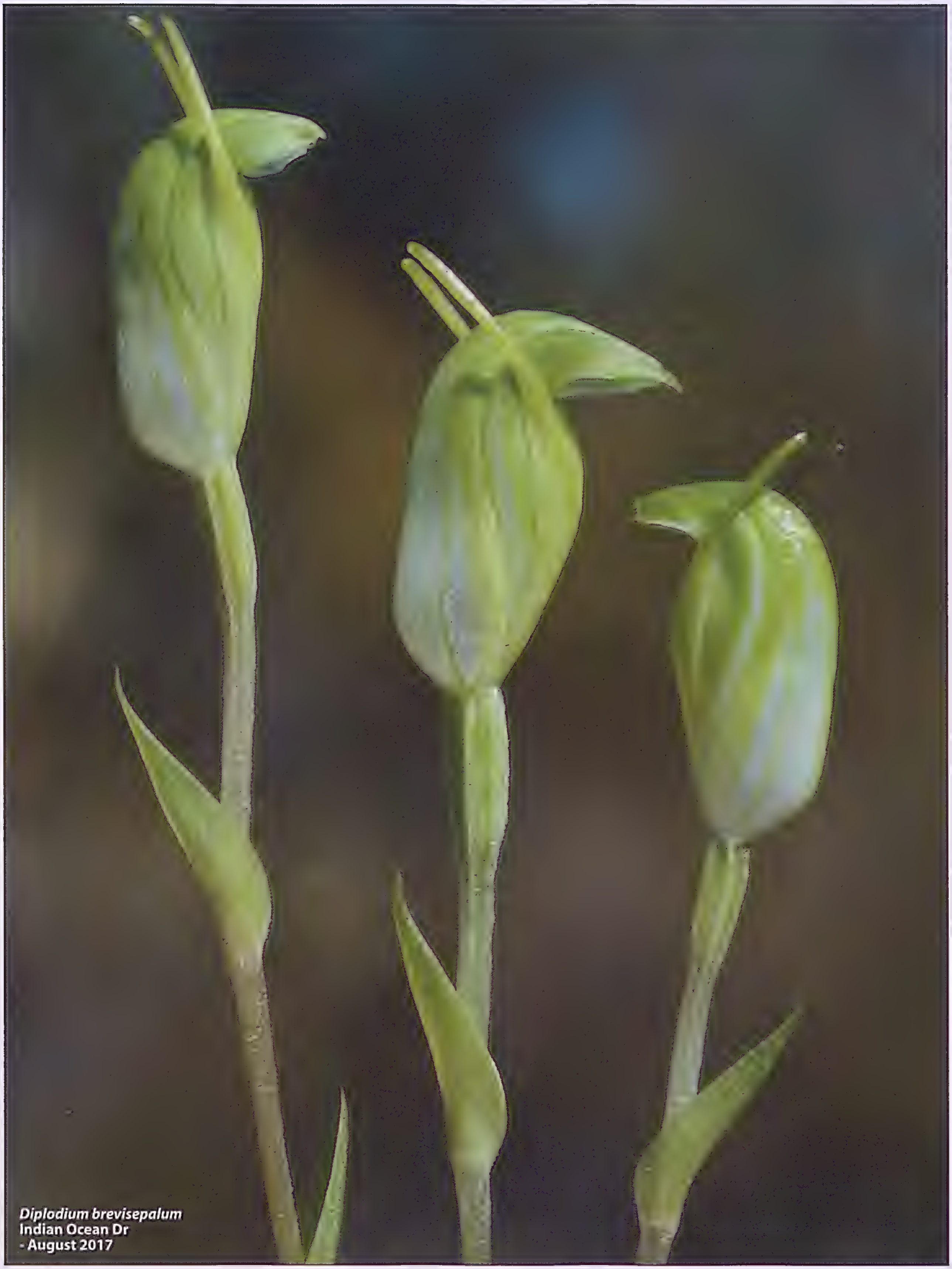


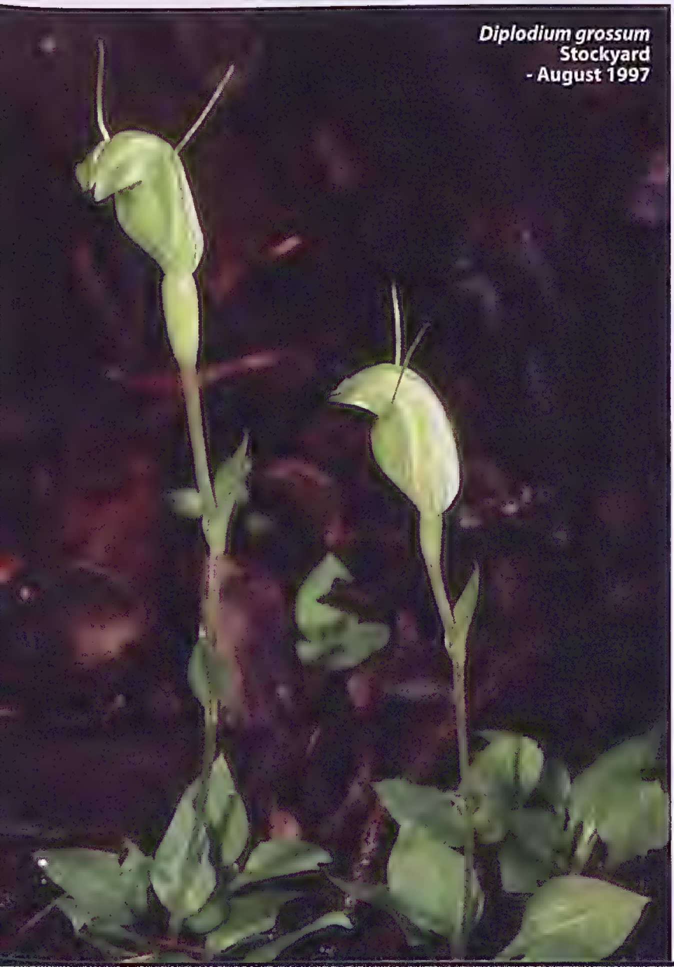
Diplodium brevisepalum
Indian Ocean Dr
- August 2017

3. *Diplodium grossum* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. but differing by its much larger rosette leaves (5-12 mm wide *cf.* 4-8 mm for *D. nanum*), thicker, taller (100-200 mm *cf.* 50-150 mm for *D. nanum*), shortly hairy scapes (smooth or slightly roughened for *D. nanum*), larger spreading stem leaves and larger flower (17-20 mm long x 7-9 mm wide *cf.* 10-15 mm long x 4-5 mm wide for *D. nanum*) with longer free points on the lateral sepals (20-25 mm long *cf.* 10-15 mm for *D. nanum*) and a much larger labellum with a broadly obtuse to truncate apex (ovate to oblong labellum for *D. nanum*); also with *D. angulatum* D.L.Jones & C.J.French but differing by its shortly hairy scape (glabrous for *D. angulatum*), fewer, larger stem leaves (2-3, 15-25 mm long by 5-10 mm wide *cf.* 3-7, 5-20 mm long by 3-8 mm wide for *D. angulatum*), petals not flared (broadly flared for *D. angulatum*), larger labellum having shortly ciliate lateral margins (glabrous for *D. angulatum*) and more south-easterly distribution.

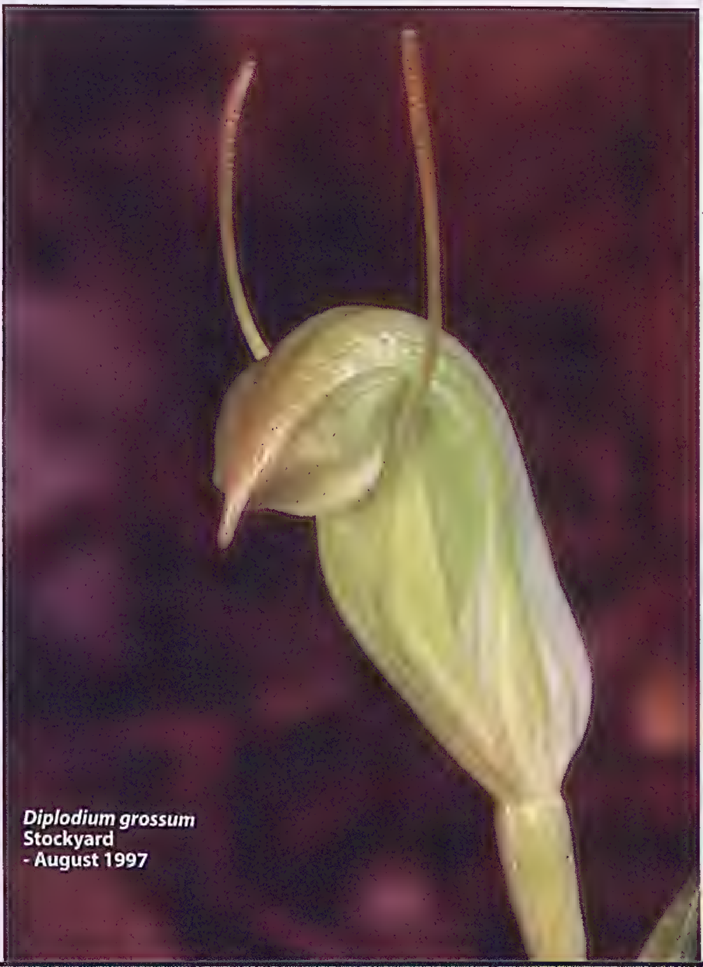
TYPE: Western Australia. Eyre District: Lake King – Ravensthorpe Rd, 4.2 km N South-west Coastal Highway, 28 Aug. 2006, C.J.French 6650 (holo PERTH, iso CANB).

Illustration: Page 364, Brown, Dixon, French & Brockman (2013) – as *Pterostylis* sp. "Ravensthorpe" - "Ravensthorpe Snail Orchid".

Description: *Rosette* basal; leaves 4-7; lamina ovate, 8-20 mm long, 5-12 mm wide, dark green, paler beneath, margins entire, apex subacute to acute; petioles 2-12 mm long, narrowly winged. *Scape* 10-20 cm long, shortly hairy. *Stem leaves* spreading, 2-3, ovate-lanceolate, 15-25 mm long, 5-10 mm wide, apex acuminate. *Ovary* 6-8 mm long, pale green, shortly hairy. *Flower* solitary, 17-20 mm long, 7-9 mm across, translucent white with dark green stripes and markings, coalescent in the distal half. *Galea* gibbous at the base then erect, curving forwards in the distal third; apex slightly decurved; dorsal sepal as long as the petals. *Dorsal sepal* ovate-lanceolate, 22-26 mm long, 10-12 mm wide, inflated at the base then tapered, striped in the proximal half, stripes coalescent in the distal half; apex acuminate. *Lateral sepals* erect, tightly embracing the galea; sinus curved in side view; upper margins flat or sloping gently to a shallow central notch in front view, flanked by an area of darker green tissue; central lobe folded internally, oblong, c. 1 mm long, obtuse; conjoined part 10-12 mm long, 5-6 mm wide, narrowed to c. 2.5 mm across at the base, the upper margins tapered suddenly into the free points; free points erect above the galea, linear-filiform, 20-25 mm long, smooth. *Petals* obliquely oblong, 19-22 mm long, 5-6 mm wide, falcate, narrowed towards the apex, green with a narrow white central stripe, distal third darker; anterior margin not flared, entire; flange obtuse. *Labellum* erect, curved forwards suddenly near the apex, white with green stripes in the proximal half, green in the distal half. *Labellum lamina* oblong, c. 6 mm long, 2.5 mm wide; lateral and basal margins shortly ciliate; apex broadly obtuse to nearly truncate. *Callus* c. 0.7 mm across, ridged, expanding to c. 0.9 mm across near the apex; basal appendage deflexed, linear, c. 3 mm long, multilobed, sparsely ciliate, curved up at the apex. *Column* 8-10 mm long, angled away from the ovary at about 45° at the base then obliquely erect, light green. *Column wings* c. 3.5 mm long; basal lobe c. 1.2 mm long, at an angle of c. 70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 2 mm long, green; apical lobe linear, c. 0.8 mm long. *Anther* c. 1 mm long, obtuse. *Pollinia* linear, c. 1.2 mm long, falcate, mealy, yellow. *Stigma* central, elliptical, c. 4 mm long, c. 1.8 mm wide, raised. *Capsule* not seen.



Diplodium grossum
Stockyard
- August 1997



Diplodium grossum
Stockyard
- August 1997

Distribution and ecology: Endemic to south-western WA from the Stirling Range to east of Esperance in sand, sandy loam and clay in eucalypt woodlands, shrublands and mallee. Flowering August to September.

Recognition: Robust species with large rosette leaves, tall thick shortly hairy scapes, large spreading stem leaves, large flowers with long free points on the lateral sepals and a large oblong labellum with a broad to truncate apex and shortly hairy margins. The flowers have a bloated appearance.

Similar species: *Diplodium angulatum* is taller with a glabrous scape, more numerous smaller stem leaves, acuminate dorsal sepal, large dark green area at the top of the sinus, broadly flared petals and long linear-clavate free points that are somewhat verrucose and a more north-westerly distribution.

Conservation Status: Widespread and conserved.

Etymology: *grossum* from the Latin *grossus*, big, coarse, gross, referring to the habit of the plant and flower.

Other specimens: WESTERN AUSTRALIA, Eyre District: Fitzgerald River National Park, 800 m W of Fitzgerald River Crossing on Colletts Track, 5 Oct. 1984, *S.D.Hopper 4223* (PERTH 08264724); Overshot Nature Reserve, Ravensthorpe - Lake King Road, 1.2 km N of the Old Newdegate Road, 28 Aug. 2006, *G.Brockman (GBB 1786)* (PERTH 07511604); Stockyard Road, 5.8 km S of Merivale Road, E of Esperance, 20 Aug. 1997, *G.Brockman (GBB 245)* (PERTH 05763231).

4. ***Diplodium polyphyllum*** D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. but differing by multi-leaved rosette of dark green shiny sagittate leaves (7-9 leaves *cf.* 4-8 for *D. nanum*), 2-3 amplexicaul stem leaves (1-2, sheathing for *D. nanum*), clavate free points (5-8 mm long *cf.* 10-15 mm long and filiform for *D. nanum*) on the lateral sepals and larger elliptical labellum with glabrous margins (sparsely hairy in *D. nanum*); also with *Diplodium lortensis* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem. which has fewer broader rosette leaves, glabrous scape, shorter flowers and longer free points which are less distinctly clubbed; also with *D. tylosum* D.L.Jones & C.J.French (described below) but differing by its more numerous rosette leaves (7-9 *cf.* 4-6 in *D. tylosum*), smaller flowers (11-14 x 4-5 mm *cf.* 16-18 x 5-6 mm for *D. tylosum*) and a glabrous labellum (shortly hairy margins in *D. tylosum*).

TYPE: Western Australia. Eyre District: Mt Manypeaks, Aug. 1992, *R.J.Bates 28821*, (holo CANB 627484).

Description: *Rosette* basal; leaves 7-9 in a tight rosette; lamina ovate to sagittate, 8-18 mm long, 4-8 mm wide, dark green, shiny, paler beneath, margins entire, apex acuminate to long-acuminate; petioles 3-7 mm long. *Scape* 4-6 cm long, smooth. *Stem leaves* amplexical at base, erect beside peduncle, 2-3, ovate-lanceolate, 10-16 mm long, 4-5 mm wide, acuminate. *Ovary* 4-6 mm long, dark green, smooth. *Flower* solitary, 11-14 mm long, 4-5 mm across, translucent white with dark green stripes and markings, shiny, coalescent near the apex. *Galea* strongly gibbous at the base then obliquely erect, curving forwards in the distal third; apex shallowly decurved; dorsal sepal about as long as the petals. *Dorsal sepal* ovate-lanceolate, 10-12 mm long, 5-6 mm wide, striped in the proximal half, stripes coalescent in the distal half, inflated at the base, constricted near middle then tapered; apex linear. *Lateral sepals* erect, tightly embracing the galea; sinus shallowly curved in side view, curved in near the top; shallowly notched in front view (largely hidden by downcurved petals), flanked by an area of darker green tissue; central lobe vestigial; conjoined part 7-9 mm long, 4-5 mm wide, narrowed to c. 3 mm across at the base, the upper margins tapered suddenly into the free points; free points clavate, 8-10 mm long, smooth, erect or curved forwards above galea. *Petals* obliquely oblong, 14-16 mm long, 4-4.5 mm wide, strongly incurved in distal half, strongly dilated near the apex, green with a narrow white central stripe, distal third darker; anterior margin irregularly crinkled; flange deltate, c. 2 mm across, obtuse; basal stalk sparsely hairy. *Labellum* erect, curved forwards near the apex, white with dark green stripes in the proximal half, dark green in the distal half. *Labellum lamina* elliptical, c. 4.5 mm long, 2 mm wide; lateral margins glabrous, basal margins with few cilia; apex broadly obtuse. *Callus* c. 0.4 mm across, ridged, expanding to c. 0.5 mm across near the apex; basal appendage deflexed, oblong, c. 1.8 mm long, apex shortly lobed, curved upwards. *Column* 7-8 mm long, angled away from the ovary at about 45° at the base then obliquely erect, dark green. *Column wings* c. 2.8 mm long; basal lobe c. 0.8 mm long, at an angle of c.70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 1.2 mm long, green; apical lobe linear, c. 0.6 mm long. *Anther* c. 1 mm long, obtuse. *Pollinia* boomerang-shaped, c. 1.3 mm long, mealy, yellow. *Stigma* central, narrowly elliptical, c. 2.5 mm long, c. 0.8 mm wide, raised. *Capsule* not seen.

Distribution and ecology: Known only from Mt Manypeaks north-east of Albany, WA, where it grows under shrubs in shallow soil over granite. Flowers August to early September.

Recognition: Characterised by a multi-leaved rosette (7-9 leaves) of dark green shiny petiolate sagittate leaves with an acuminate apex, short glabrous scape with 2-3 amplexicaul stem leaves, relatively small dark green and white flowers, short clavate free points and an elliptical labellum with entire margins.

Similar species: *Diplodium lortensis* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem. has fewer broader rosette leaves, glabrous scape, shorter flowers and longer free points which are less distinctly clubbed.

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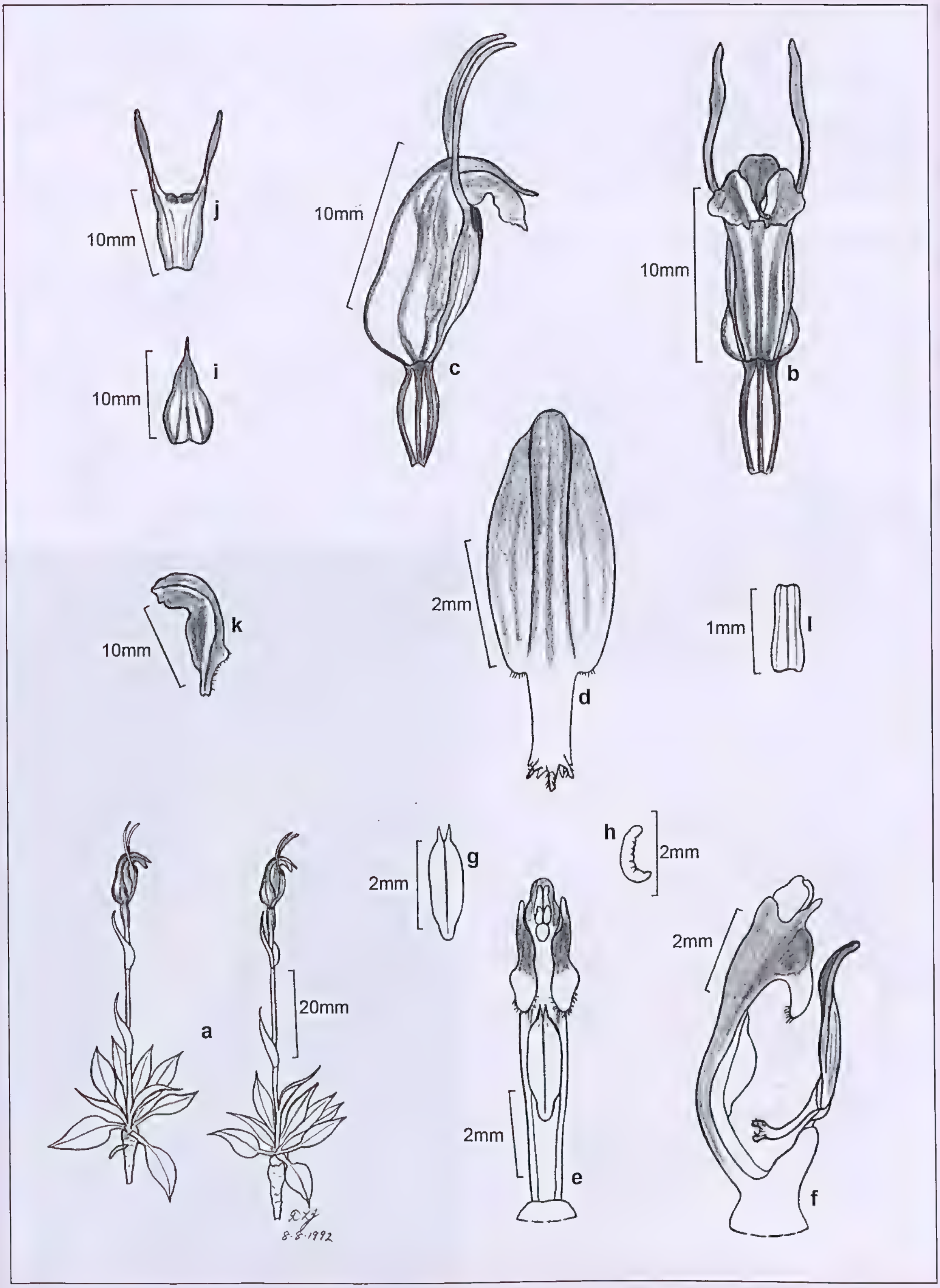


Diplodium polyphyllum, Mt Manypeaks, WA, _R.J.Bates 28821_. (part of TYPE)
a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. lateral sepals; k. petal; l. labellum hinge.
© D.L.Jones, drawn 8 August 1992.

Conservation Status: Of restricted distribution, poorly known and not conserved.

Etymology: Latin *poly*, many and *-phyllon*, leaf, leaves, referring to the distinctive multi-leaved rosette.

Other specimens: None found but the specimens in the following collection have many similar features: Mt Buraminya, near summit, 40 km NW Mt Ragged, 134 km NE Esperance, 8 Sep. 1990, *W.Archer 8099015* (CANB 639553).

5. *Diplodium tylosum* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. but differing by its larger narrowly ovate rosette leaves (8-22 mm long x 5-12 mm wide *cf.* 4-15 mm long x 4-8 mm wide for *D. nanum*), spreading stem leaves (sheathing for *D. nanum*), short clavate free points (5-8 mm long *cf.* 10-15 mm long and filiform for *D. nanum*) on the lateral sepals and more densely ciliate margins on the labellum (sparsely hairy in *D. nanum*); also with *D. lortensis* (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem. but differing by its larger flowers (16-18 mm *cf.* 11-13 mm for *D. lortensis*), shorter, much thicker, more strongly clubbed lateral sepal free points (5-8 mm long *cf.* 7-9 mm long for *D. lortensis*) and a larger labellum.

TYPE: Western Australia. Darling District: Mt Chudalup, south of Northcliffe, 25 Aug. 1992, Christopher & Marie French (DLJ9878), (holo CANB 663419).

Illustration: Page 356, Brown, Dixon, French & Brockman (2013) – as *Pterostylis* sp. "Chudalup" - "Mount Chudalup Snail Orchid".

Description: *Rosette* basal; leaves 4-6 in a loose rosette; lamina ovate to elliptical, 8-22 mm long, 4-10 mm wide, green to yellowish green, paler beneath, margins irregular, apex subacute to obtuse, entire; petioles 4-12 mm long. *Scape* 6-10 cm long, minutely scabrid. *Stem leaves* spreading, 2-3, ovate to ovate-lanceolate, 8-16 mm long, 4-6 mm wide. *Ovary* 4-6 mm long, dark green, smooth or weakly verrucose. *Flower* solitary, 16-18 mm long, 5-6 mm across, translucent white with green stripes and markings, coalescent in the distal half. *Galea* gibbous at the base then erect, curving forwards in the distal third; apex shallowly decurved; dorsal sepal about as long as the petals. *Dorsal sepal* ovate-lanceolate, 8-10 mm long, 5-7 mm wide, inflated at the base then tapered, striped in the proximal half, stripes coalescent in the distal half; apex subacute. *Lateral sepals* erect, tightly embracing the galea; sinus curved to nearly flat in side view, curved in near the top; shallowly notched in front view, flanked by an area of darker green tissue; central lobe folded internally, c. 2 mm long, dark green, notched; conjoined part 7-12 mm long, 6-7.5 mm wide, narrowed to c. 3 mm across at the base, the upper margins tapered suddenly into the free points; free points thickly clavate, 5-8 mm long, smooth, weakly reflexed. *Petals* obliquely oblong, 14-16 mm long, 4-4.5 mm wide, strongly falcate, weakly dilated near the apex, green with a narrow white central stripe, distal third darker; anterior margin irregularly crinkled; flange deltate, c. 2 mm across, obtuse. *Labellum* erect, weakly curved forwards near the apex, white with green stripes in the proximal half, green in the distal half. *Labellum lamina* oblong, c. 5 mm long, 2 mm wide; lateral and basal margins shortly ciliate; apex obtuse. *Callus* c. 0.4 mm across, ridged, expanding to c. 0.7 mm across near the apex; basal appendage deflexed, linear-oblong, c. 2 mm long, apex shortly lobed, sparsely ciliate, curved upwards. *Column* 8-10 mm long, angled away from the ovary at about 45° at the base then obliquely erect, green. *Column wings* c. 3 mm long; basal lobe c. 1 mm long, at an angle of c.70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 1.3 mm long, green; apical lobe clavate, c. 1 mm long. *Anther* c. 1 mm long, obtuse. *Pollinia* linear, c. 1.2 mm long, falcate, mealy, yellow. *Stigma* central, elliptical, c. 3 mm long, c. 1.4 mm wide, raised. *Capsule* not seen.

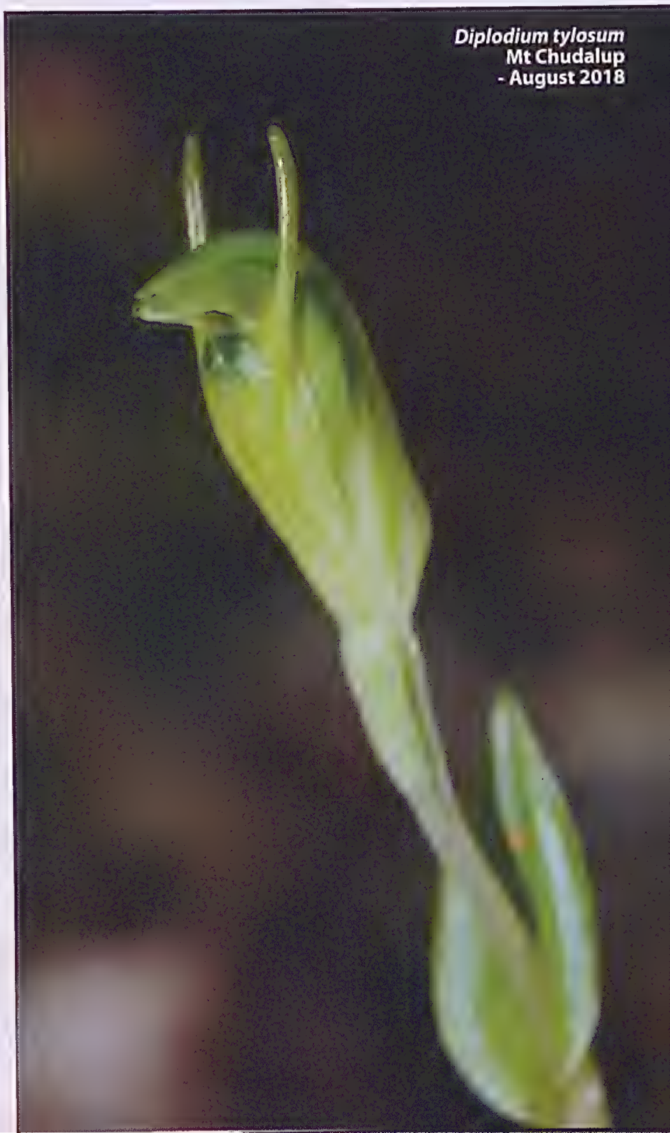
Distribution and ecology: Apparently confined to Mt Chudalup where it grows in moss on granite. Flowers August to early September.

Recognition: Characterised by a relatively large rosette of narrow leaves, short minutely scabrid scape, proportionately long flowers with short, strongly clavate free points and an oblong labellum with minutely scabrid margins.

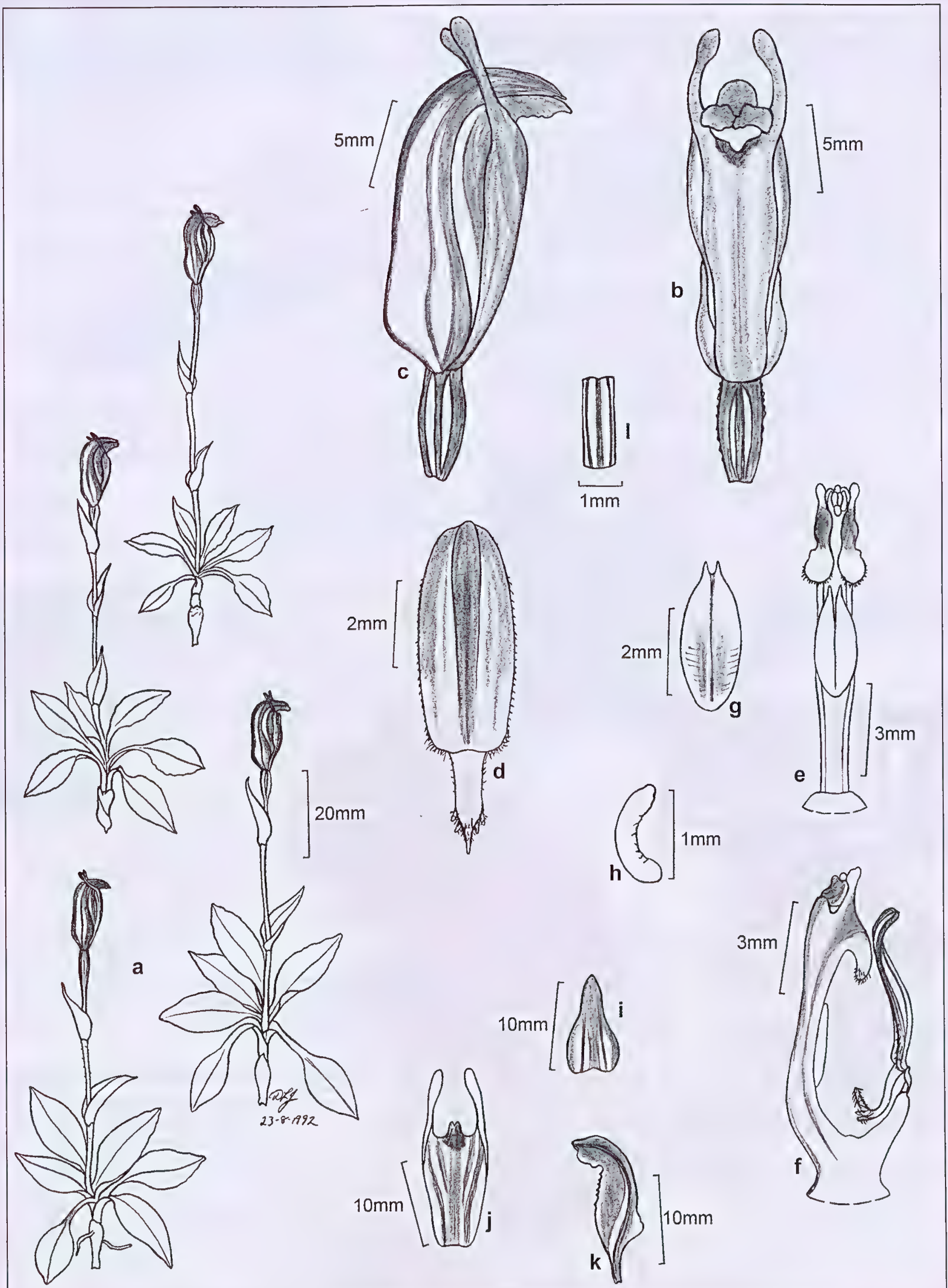
Similar species: *Diplodium lortensis* has fewer broader rosette leaves, glabrous scape, shorter flowers and longer free points which are less distinctly clubbed.

Conservation Status: Of restricted distribution, poorly known and not conserved.

Etymology: The Greek *tylos*, knot, knob, referring to the short strongly clubbed free points on the lateral sepals.



Diplodium tylosum
Mt Chudalup
- August 2018



***Diplodium tylosum*, Mt Chudalup, WA, *C. & M. French (DLJ 9878)* (part of TYPE)**
a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. lateral sepals; k. petal; l. labellum hinge.
© D.L.Jones, drawn 23 August 1992.

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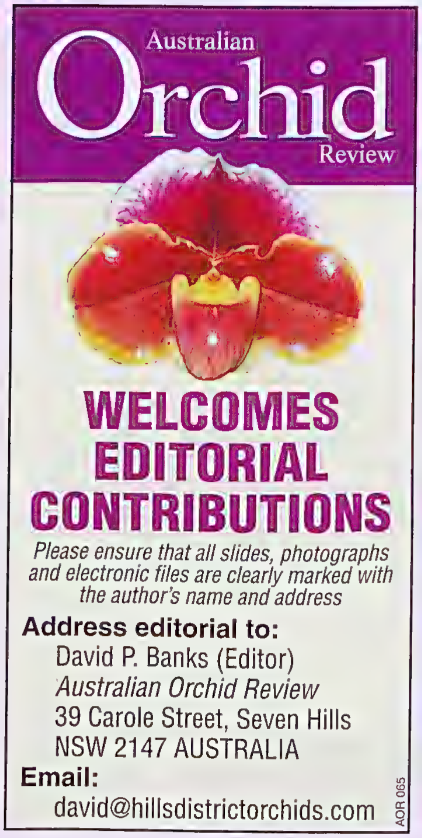

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How to grow orchids in the backyard

by Robert Friend

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[illegible] shows you how to introduce orchids [illegible] the garden, by attaching them to trees, fixing them on rocks and walls, or planting them in garden beds. With more than 150,000 species and hybrids of orchids in the world, there are plants suitable for every garden.

Robert Friend draws on a lifetime's experience with orchids to explain how to choose the right orchid for your climate and how to landscape orchids in different types of gardens. Ranging from tropical to cool climate areas, from large acreages to small courtyard gardens, almost every backyard can enjoy the best of one of nature's wonders.

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THE ALLURE OF ORCHIDS

by Mark A. Clements

From 1788 when First Fleet artist George Raper painted *Diuris punctata*, the botanical world has been fascinated by Australian orchids. Hundreds of orchid images from the National Library of Australia's collection, with words by Mark Clements from the Australian National Herbarium in Canberra, make *The Allure of Orchids* a must-read for lovers of flowers, original paintings and our indigenous orchids. Many of these unique botanical illustrations are being showcased to a wider audience for the very first time.

The Allure of Orchids features an essay by internationally recognised orchid expert Mark Clements, accompanied by a portfolio of illustrations, both historical and modern, of this alluring species. In it you will find works by around 25 artists, including the extraordinarily detailed lithographs of early botanical illustrator Ferdinand Bower, Ellis Rowan's beautiful paintings, the delicate watercolours of Margaret Cochrane Scott, and many more.

The Allure of Orchids is divided into two parts; Terrestrial or ground orchids and Epiphytic or tree dwelling species. Clements says, "These illustrations can be enjoyed simply as works of art and part of our rich and colourful Australian illustrative heritage. But, significantly, they are also part of the scientific record of this country, particularly during the early exploration of the continent."

Interestingly, a lot of the old and traditional Latin botanical names have been used in this work. The author makes a significant number of anecdotal notes and comments throughout the book, to keep the reader fully informed. It is a "must have" book for those interested in Australian orchids and historical botanical art.

159 pages, colour.
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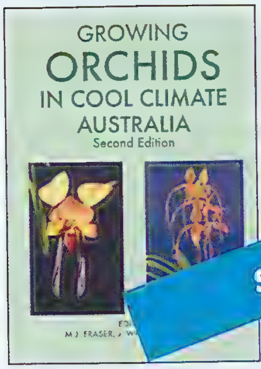

GROWING ORCHIDS IN COOL CLIMATE AUSTRALIA

(Second Edition, 2013)

Editors: Fraser, M.J., Wright, J., & Ferris, W. 2013

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128 pages with about 190 photos. Paperback.

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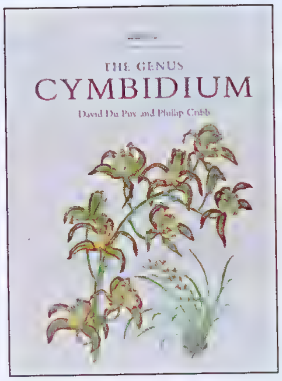

THE GENUS CYMBIDIUM

by David Du Puy and Phillip Cribb

Second edition (2007). Full taxonomic accounts of all 52 species of Cymbidium, including distribution, maps, colour photographs, line drawings and colour paintings. Taxonomic key. Detailed conservation assessment of Cymbidium. Cultivation chapter and breeding chapters as well as chapters covering history, morphology, seed morphology, anatomy, cytology, pollination, uses and phylogeny.

369 pages, colour photographs, line drawings, maps. Small quarto, dustwrapper.

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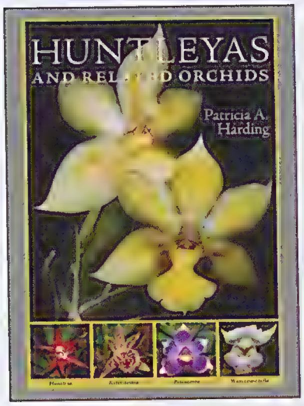

HUNTLEYAS AND RELATED ORCHIDS

by Patricia A. Harding

Revered by avid orchid collectors for its delightful, star-shaped flowers, *Huntleya* is a small group of orchids found low in the forest. *Huntleya* is a small orchid genus that includes fourteen species. They occur in wet cloud forests at medium altitudes of Guatemala, Costa Rica, South America down to Bolivia. The type species *Huntleya meleagris* also occurs in Trinidad. Besides their striking colours — from deep blue to waxy red, royal purple to almost black — flowers of this group are known for their distinctive shapes, patterns, and textures. As appealing as these lovely tropical orchids are, their identification has been confused since the first species was described in the mid-1800s. Recent DNA studies have led to a clearer understanding of relationships and, as a result of this clarity, it is now possible to sort out the taxonomic problems and identify the characteristics that set species apart. In this first book devoted to the *Huntleya* alliance, author Patricia Harding presents evidence from the scientific literature, other growers, and her own experience that will enable orchid enthusiasts everywhere to identify their plants and grow them successfully. Patricia A. Harding is an accredited American Orchid Society judge who has been growing and photographing orchids for three decades.

260 pages, 150 colour photos. Hardcover.

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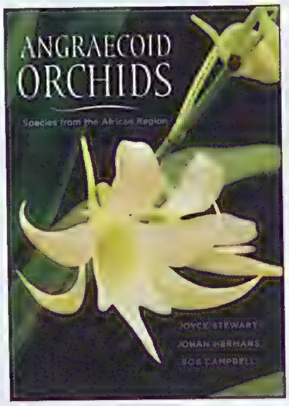

ANGRAECOID ORCHIDS:

Species from the African Region

by Joyce Stewart, Johan Hermans, and Bob Campbell

These so-called 'Jewels of Africa' with their sparkling flowers, distinctive growth habit and floriferous nature are much prized and this account, the first to include the Angraecoid orchids of both Africa and Madagascar, is long awaited. It brings together, in a single volume, descriptions of all 690 species in this intriguing group of orchids and will be the essential reference for all Angraecoid orchid enthusiasts for years to come. Including such horticulturally important genera as *Angraecum*, *Aeranthes*, *Aerangis* and *Jumellea*. Stewart, Herman and Campbell have all spent time in various parts of eastern and southern Africa and precise ecological information relating to habitat, altitude preferences and flowering season of individual plants will be particularly helpful to growers. The diagnostic features of each genus are illustrated and over half the species are accompanied by exquisite photographs taken in both wild habitats and in cultivation.

432 pages, 290 colour photos. 185mm x 265mm. Hardcover.

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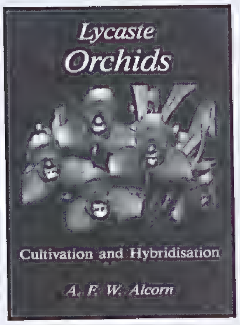

LYCASTE ORCHIDS - Cultivation and Hybridisation

by A.F.W. Alcorn

Lycaste orchids are easy to grow, and they produce flowers that range from the beautiful to the bizarre. No book previously has provided detailed cultural requirements of the Lycaste, and this book should fill that gap, and encourage new growers to take up the cultivation of this beautiful genus. A section on hybridising contains valuable information on inheritance and genetics that will benefit any hybridiser, not just the grower of Lycastes, as well as helpful hints on how to avoid pitfalls in your hybridising program. Michael Hallett, a friend of Fred Alcorn for a number of years, co-wrote this book with Fred and has completed it posthumously. He has a background in genetics, research and botany, and a passion for plants, especially orchids.

237 pages. Colour and B&W.

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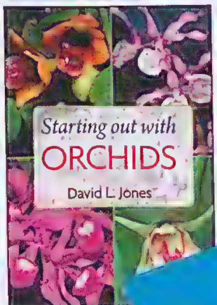

STARTING OUT WITH ORCHIDS

by David L. Jones

SOLD OUT

David Jones is arguably one of Australia's most prolific, precise and respected botanical and horticultural authors. The book is divided in two parts. Part One begins with the cultivation chapters, covering Easy Orchids for Beginners, General Cultivation Requirements, Growing Epiphytic Orchids, Growing Terrestrial Orchids, [illegible] and Diseases, Housing Your Orchids and Propagating [illegible] information contained within these pages [illegible] beginners through to experienced [illegible] to read and understand with [illegible] treatments discussed. There are [illegible] illustrations that help describe terms or [illegible] features. There are over 250 colour photographs. [illegible] discusses the orchids themselves with concise information on each species. They are [illegible] mainly according to climatic requirements, starting with cool growing orchids progressing to the warm [illegible] growers, in alphabetical sequence first with terrestrial genera, followed by the epiphytes. Both Australian and exotic species are treated together. For each entry there is specific detailed information on each species, as well as a simple table giving the basic cultivation needs and flowering season. A glossary is also included to explain unfamiliar terms.

240 pages, colour. 210mm x 148mm. Softcover.

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2019 ORCHID EVENTS – *What's on!*

June 29-30 Mingara Orchid Fair & Show
– Mingara, NSW

July 12-14 Western Suburbs Orchid Society
Liverpool special Orchid Sale
– Liverpool Mall 9.00am -5.00pm
– Liverpool, NSW

July 13-14 Tinonee Orchids
– Workshop and Open Day
– Tinonee, NSW

July 28 Hills District Orchids
– Northmead Winter Open Day
– Northmead, NSW

August 3-4 Warringal Orchid Society
– Winter Show
– St. Sava Community Centre, Greensborough, VIC

August 10-11 National Orchid Extravaganza
– Dural, NSW

August 16-18 St. Ives Orchid Fair

August 22-25 Western Suburbs Orchid Society
– Winter Show 9.00am -5.00pm
– Ashfield Mall, NSW

August 23-25 9th Australasian Native Orchid Conference & Show
– Strathpine, QLD

August 31-Sept 1 Speciosum Spectacular
– Kempsey, NSW

Sept 13-15 Woodburn-Evans Head & District Orchid & Foliage Society Inc.
– Spring Show
– Woodburn, NSW

Sept 14 Bellingen Plant Fair
– Bellingen, NSW

Sept 19-21 Casino & District Orchid Society
– Spring Show
– St. Marks Anglican Church Hall, Casino, NSW

Sept 28-29 Warringal Orchid Society
– Spring Show
– St. Sava Community Centre, Greensborough, VIC

Sept 29 Hills District Orchids
– Northmead Spring Open Day
– Northmead, NSW

Oct 24-27 Western Suburbs Orchid Society
– Spring Show 9.00am -5.00pm
– Ashfield Mall, NSW

ADVERTISERS INDEX

American Orchid Society	44
Aussie Shade & Hothouses	31
9th Australasian Native Orchid Conference & Show	26
Australian Orchid Foundation	2, 32
Barrita Orchids	17
Burleigh Park Orchid Nursery	31
C-Mac Industries (Aust.)	13
East Coast Orchid Laboratories	16
Hills District Orchids	IFC
Horticultural Courses	31
Kiwi Orchid Bark	37
Mallee Phallies	28
Mount Beenak Orchids	40
Nicky's Slippers	24
Ocean Mist Humidifiers (Flora Laboratories)	17
Orchid Pot Company, The	5
Orchid Species Plus	15
Orchidaceous Books	17
Orchidaceous Supplies	12
Orchids North	17
Red Diamond Design	16
Red Fox Orchids	15
Retina Australia	40
Rock Lily Man, The	22
St Ives Orchid Fair	2
Tinonee Orchids	2

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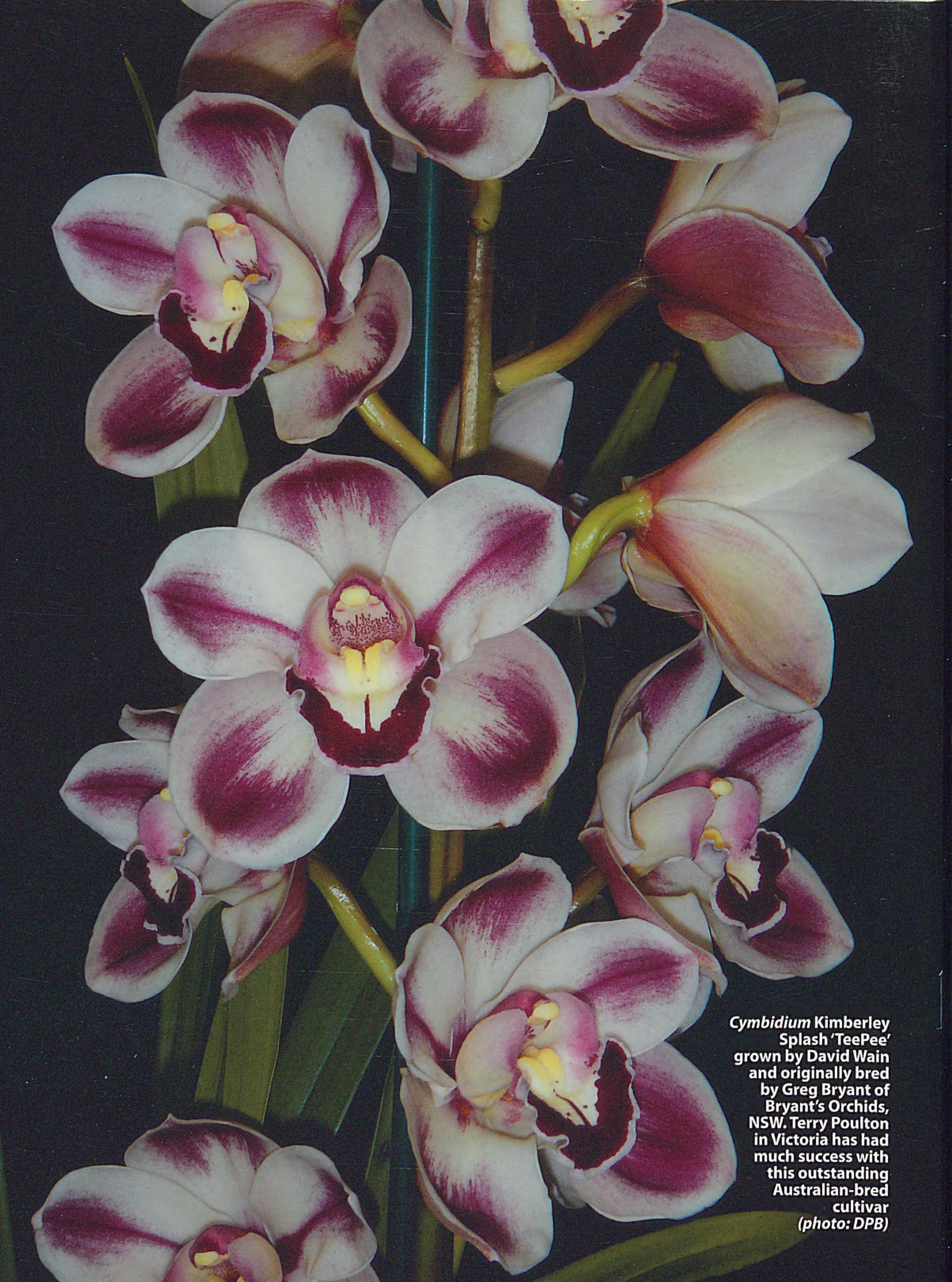

Cymbidium Kimberley Splash 'TeePee' grown by David Wain and originally bred by Greg Bryant of Bryant's Orchids, NSW. Terry Poulton in Victoria has had much success with this outstanding Australian-bred cultivar *(photo: DPB)*